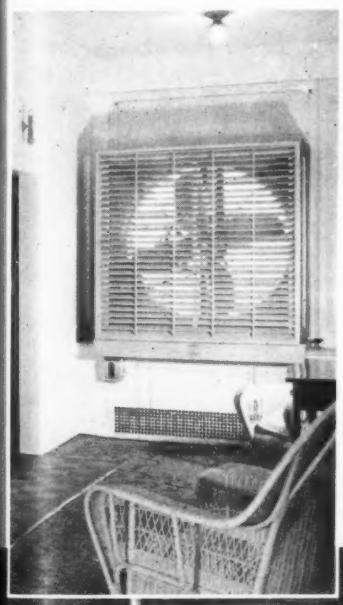
JULY, 1941

# ELECTRICAL SOUTH

BILOXI, on the Gulf, entertains many thousands of tourists throughout the entire year. Hotel facilities are available to satisfy all. ● Special care has been taken by the owners of the Buena Vista and White House properties to provide for the circulation of natural sea breezes by installing HUNTER ZEPHAIR Cooling Systems.



HUNTER FAN
& VENTILATING COMPANY, INC.

*Factory*: FULTON, N. Y.

*General Sales Offices*: Memphis, Sterick Bldg. *Eastern Sales Office*: New York, 92 Warren Street

*Western Sales Office*: St. Louis, 1804 Pine Street

*Sales Offices*:

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BOSTON CLEVELAND DETROIT KANSAS CITY NEW ORLEANS PITTSBURGH
ST. LOUIS

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...In just 6 months of 1941
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SELL FRIGIDAIRE

Frigidaire Division, General Motors Sales Corporation, Dayton, Ohio



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Volume 21 Number 7

# PANTHER and DRAGON TAPES

## FAMOUS FOR PERFORMANCE

1. First to be Wrapped and SEALED in Cellophane
2. Perfect Adhesiveness and Tensile Strength
3. Strong Distinctive Green Core
4. Colorful Attractive Boxes
5. A Company in the Insulation Business Since 1878

**Sold Exclusively Through Distributing Wholesalers**

## HAZARD INSULATED WIRE WORKS

**Division of the Okonite Co.**

**Works: Wilkes-Barre, Pennsylvania**

New York · Chicago · Philadelphia · Atlanta · Pittsburgh · Dallas
Buffalo · Cleveland · St. Louis · Boston · Detroit · Seattle
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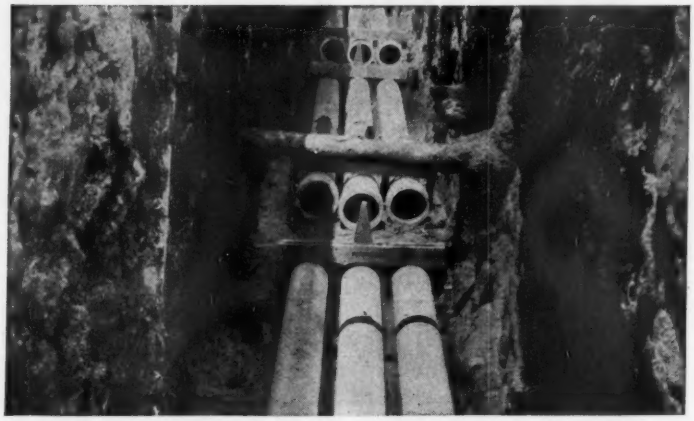
# QUICK FACTS ON DUCTS...

## YOU DON'T NEED CONCRETE

Transite Conduit retains its true form under sustained loads... requires no concrete envelope underground or in exposed locations. When "concreting-in" is specified, the thinner walled J-M Transite Korduct provides the same durability and smooth interior at lower material costs. Both types of Transite Ducts are light in weight, easily handled.



## YOU CAN FORGET CORROSION

Smoke, acid fumes, weather or corrosive soils have little or no effect on J-M Transite Ducts. Made of asbestos and cement, they will not rust, rot or decay. Furthermore, Transite Ducts are completely incombustible, do not add to gas formation if burnouts occur, and have exceptional resistance to flame and arc. Maintenance costs are practically zero.

## YOU GET FASTER CABLE LAYING

Cables pull easier through the smooth interior of Transite Ducts. Even after years of service this hard surface stays smooth, joints remain tight. Cables are readily removed and replaced.

• • •

**For complete facts on Transite Conduit and Transite Korduct, let us send you Data Sheet Manual DS-410. Write to Johns-Manville, 22 E. 40th Street, New York, N. Y.**

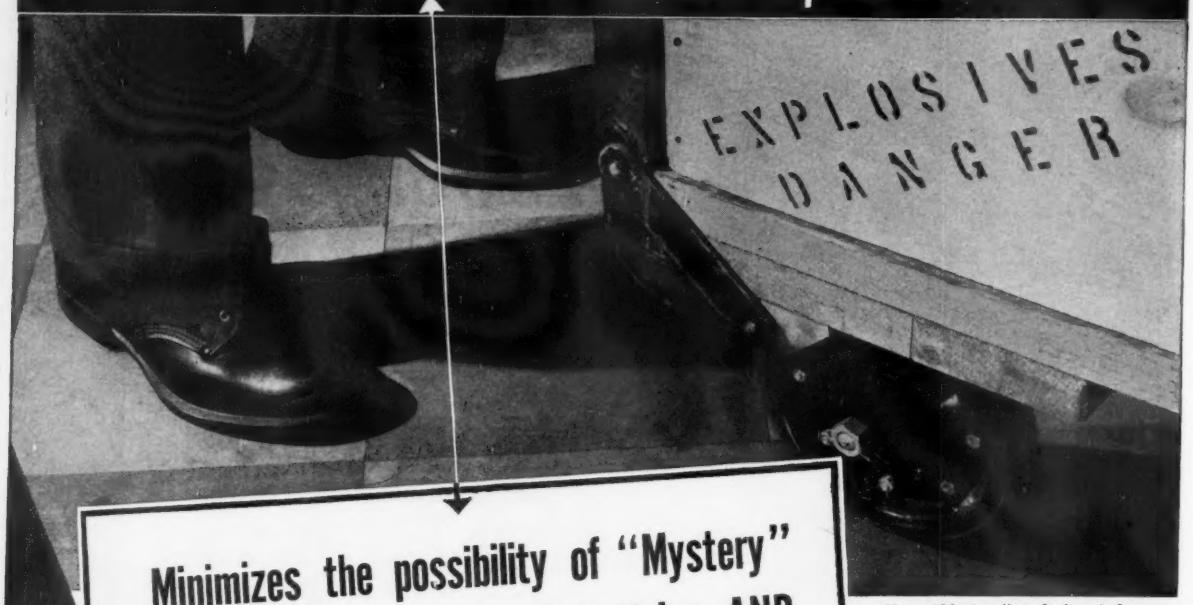
## SPECIFY

# Johns-Manville TRANSITE DUCTS

### FOR LOW-COST DISTRIBUTION

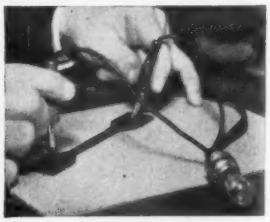
A TOUGH JOB
...MADE EASY
When you come to the short radius bends, your appreciation of Youngstown Buckeye Conduit's ductility will be immeasurably increased. You will find, too, that this ductility is uniform and will tend to eliminate lost motion in installation.
Ductility is but one of the many desirable qualities of Buckeye Conduit. This high quality is due to the careful watchfulness of the men who make it, the skill which comes only with long years of experience, and the pride Youngstown workmen take in producing an electrical conduit you can use with satisfaction and profit.
Ask your distributor for Youngstown Conduit - Pipe and Tubular Products - Sheets - Plates - Tin Plate - Bars - Rods - Wire - Nails - Tie Plates and Spikes.
26-18D
BUCKEYE
TRADE MARK
YOUNGSTOWN
CONDUIT
THE
YOUNGSTOWN
SHEET AND TUBE COMPANY
Manufacturers of Carbon, Alloy and Yoloy Steels
General Offices - YOUNGSTOWN, OHIO

# CONDUCTING RUBBER makes it possible . . .

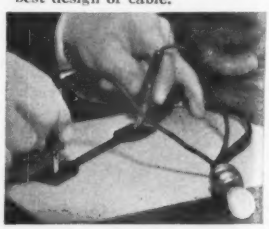



## Minimizes the possibility of "Mystery" explosions in defense industries AND eliminates the deteriorating influences that attack insulation in POWER CABLES

Many "Mystery" explosions today, can possibly be explained by the fact that a worker scuffing across a non-conductive floor can build up a sufficient charge of static electricity to make a good hot spark. In realization of this, the War Department instigated the development of "conductive occupational" footwear—now on the feet of thousands of workers in defense industries.



These photographs taken in our laboratories show a 15-watt bulb being lighted by the flow of current from a 110-volt plug-in, through an ordinary "dumb-bell" sample of conducting rubber. These tests indicate that wide range of conductivity in rubber is available, and this conductivity can be varied to suit the best design of cable.



*American Steel & Wire Company's Type PS Semi-Conducting Shielding (Conducting Rubber) makes any insulation "Corona Proof"—and since no ozone forms, there is no need for further protection against ozone action!*

FOR over 40 years, manufacturers of insulated cables have concentrated on producing "ozone-proof insulation". While many types have been put on the market that controlled corona and attendant ozone formation to varying degrees — *cables still did develop trouble.*

But now American Steel & Wire Company has developed a *New* shielding! A truly significant discovery — TYPE PS SEMI-CONDUCTING SHIELDING (Conducting Rubber)—that completely eliminates these previously non-controllable, highly deteriorating influences which attack organic insulation. Type PS Semi-Conducting Shielding is produced by an exclusive American Steel & Wire Company process. Power cable users will instantly recognize its great value.

At the present, we can supply users with many types of single and multiple conductor cables, sheathed by various methods with Type PS Semi-Conducting Shielding. Write today for more complete information and our technical brochure — all requests will be promptly handled.

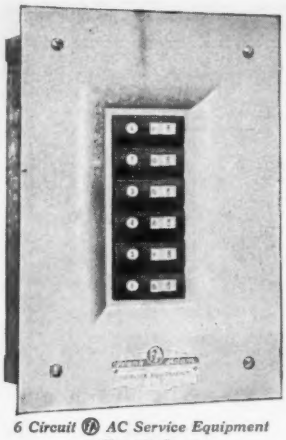
**AMERICAN STEEL & WIRE COMPANY**

*Cleveland, Chicago and New York*

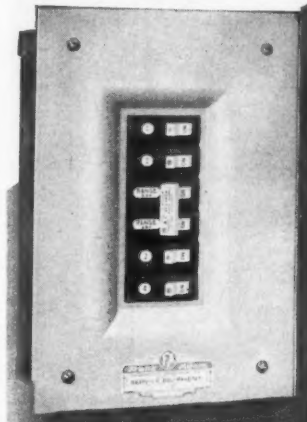
Columbia Steel Company, San Francisco, *Pacific Coast Distributors*

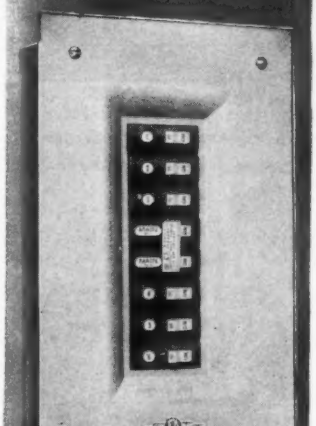
United States Steel Export Company, New York

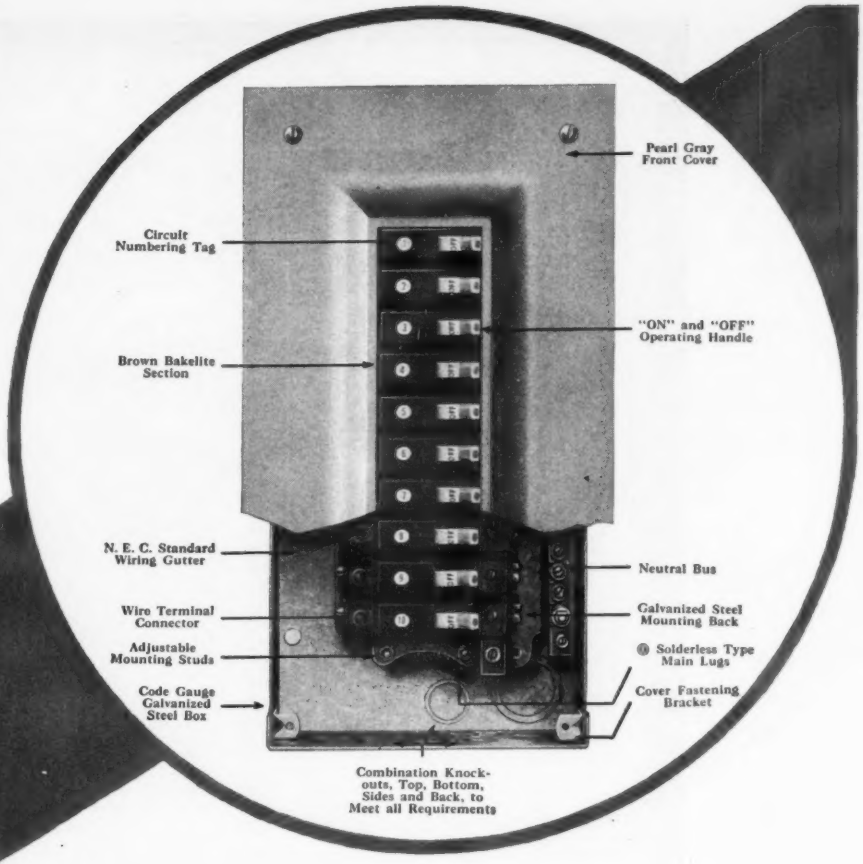
**UNITED STATES STEEL**



*6 Circuit (FA) AC Service Equipment with main lugs. Cat. No. SE60-3L7F List Price $11.00*






Pearl Gray Front Cover
Circuit Numbering Tag
"ON" and "OFF" Operating Handle
Brown Bakelite Section
N. E. C. Standard Wiring Gutter
Neutral Bus
Wire Terminal Connector
Galvanized Steel Mounting Back
Adjustable Mounting Studs
(FA) Solderless Type Main Lugs
Code Gauge Galvanized Steel Box
Cover Fastening Bracket
Combination Knock-outs, Top, Bottom, Sides and Back, to Meet all Requirements

*You pay no premium*

when you specify

# (FA) Type AC Circuit Breaker Service Equipment and Load Centers

—but this is what you get:

- Modern protection against overload.
- Only two handle positions — ON and OFF—no intermediate position. Breakers reset automatically.
- Interchangeable as to capacities.
- One-piece galvanized box — provides perfect ground connection.
- Bonderited (rustproof) cover, with pearl gray lacquer finish.
- Solderless lugs of improved type.
- Ample knockouts.
- Plenty of wiring space.

For 120 volt AC Service . . . Capacities: 15, 20, 25, 35, and 50 amperes . . . Approved by Underwriters' Laboratories.

**There is a Wholesaler near you**

who carries (FA) Service Equipment in stock, for quick delivery. Write us for his name and address—and for Bulletin 62 . . . Frank Adam Electric Company, St. Louis, Mo.

Frank (FA) Adam

1891 FIFTY YEARS SERVICE 1941

# Have you seen our etchings?

*Polished etchings of copper-lead tube cross-sections magnified 15 diameters. Note uniformity throughout the entire structure.*

No double entendre is implied in our question, for these etchings aren't made to adorn bachelor walls—collectors turn up their noses at them. But, to you—that's different. To you they are priceless because they help make the quality and efficiency of Anaconda lead sheathed cable *unbeatable*.

By etching samples of lead and then examining them under the microscope, Anaconda engineers can actually see whether the sheath is perfect enough to be used in Anaconda cable. And in this guardian capacity, they see ways to make improvements.

This kind of research gives all Anaconda wires and cables an unmistakable identity. When you see the Anaconda trademark, you know, *because we proved it*, that the product bearing it is of the highest quality available.

*Anaconda Wire and Cable Company*
General Offices: 25 Broadway, New York City.
Chicago Office: 20 North Wacker Drive.
A subsidiary of Anaconda Copper Mining Co.
Sales Offices in Principal Cities.

ANACONDA
from mine to consumer

*This familiar trademark identifies Anaconda products. It symbolizes the best efforts of man and science.*

41384

## Use Modern Improved
# ANACONDA WIRE & CABLE

*JULY, 1941*

Volume 21 No. 7

# ELECTRICAL SOUTH

J. C. MARTIN, Manager
RICHARD P. SMITH, Promotion Manager
W. E. COOGLER, Production Manager

*Editorial and Business Offices*
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ATLANTA, GEORGIA

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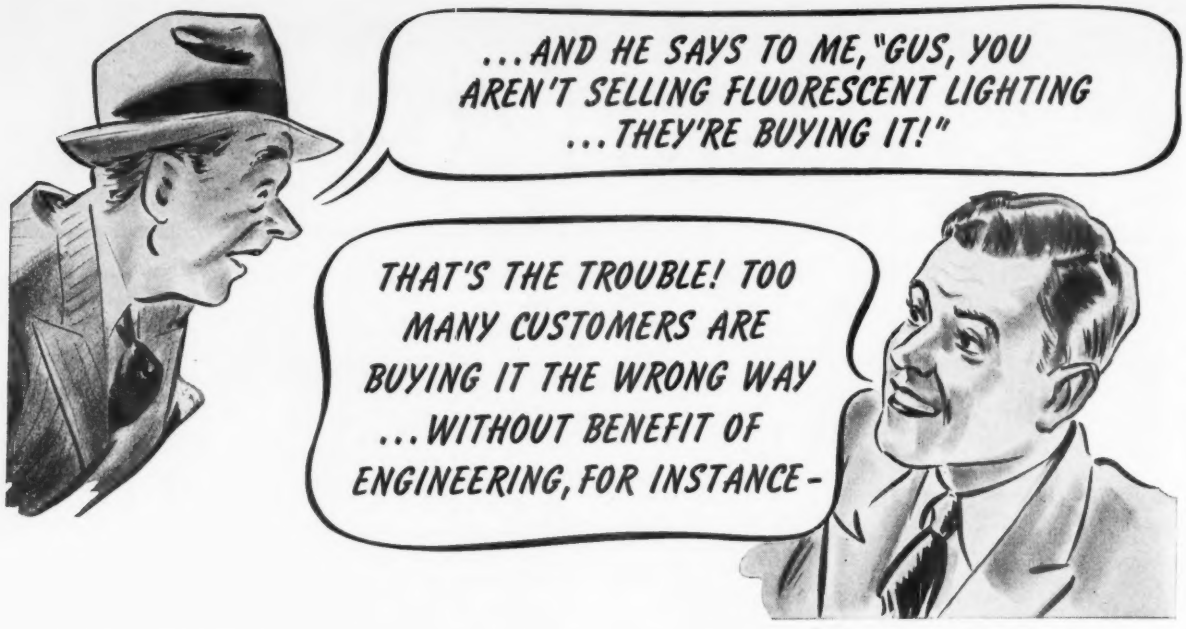

...AND HE SAYS TO ME, "GUS, YOU AREN'T SELLING FLUORESCENT LIGHTING ...THEY'RE BUYING IT!"
THAT'S THE TROUBLE! TOO MANY CUSTOMERS ARE BUYING IT THE WRONG WAY ...WITHOUT BENEFIT OF ENGINEERING, FOR INSTANCE -

GENERAL ELECTRIC recently made a survey of new fluorescent lighting installations in small stores. Here's what it showed:

*Installations as a result of direct sale*.....37%
*Installations as a matter of customer seeing a fluorescent job and inquiring where he could buy one like it*.....42%
*Installations as a result of one business man recommending fluorescent to another*.....21%

To be sure, a jobber, a contractor, or a manufacturer had been called in on all of these "sales." But, in more than two-thirds of them, the customer said, "I want fluorescent lighting. Where can I get it and how much does it cost?"

The contractor or representative made the quotation and furnished the fluorescent lamps and fixtures. He did not sell the job. It was bought.

Because too many of the average fluorescent installations are bought without adequate engineering help, too many jobs are poor. Many show poor fixture selection, poor light distribution, and don't provide enough light.

### WHAT TO DO ABOUT IT!

We both have a joint problem to see that good fluorescent lighting installations are made in the first place. More customers must be sold on the need for properly engineered lighting . . . the amount of light they need in order to produce maximum profits.

Utility lighting representatives are the only group large enough in number, who know the facts about lighting, and who can spend the time to tell the story of better lighting and its advantages to the average store and average industrial plant. This group is the hope of the lighting industry in helping contractors, fixture salesmen, and distributors' men, locally, to spread the gospel of the need for selling engineered lighting, and to tell the facts about increasing sales and producing fewer rejects, less spoilage, and better morale.

### G.E. HAS HELPS TO HELP YOU

To help utility men sell the higher lighting levels needed, General Electric now has available many new sales tools including:

**1** G-E Footcandle Selectometer—a device which the customer operates himself to determine how many footcandles he would like to have for proper seeing.

**2** A sales presentation easel and sales manual—with pictures, short copy, and sales ideas; to be used by the salesman talking either commercial or industrial lighting.

**3** The Seeing Spinner that demonstrates how good lighting speeds seeing.

**4** A visibility meter or seeing selector which provides a means for demonstrating to the customer how good light makes seeing easier and quicker.

**IN ADDITION,** General Electric has slide films, booklets, direct mail pieces, and a manual of ideas—detailed suggestions for planning and carrying out a complete industrial and commercial lighting program. For complete information, see your General Electric lamp representative. General Electric Company, Nela Park, Cleveland, Ohio.

**G-E MAZDA LAMPS** *Made to stay brighter longer*

**GENERAL ELECTRIC**

HAVE YOU JOINED *the 49-er club?* SEE YOUR G-E LAMP REPRESENTATIVE!

ELECTRICAL SOUTH

*JULY, 1941*

# PRODUCTIVE APPLIANCES PUSHED IN RURAL SALES CAMPAIGN

***Cooperative dealer-utility rural sales campaign concentrated on productive appliances with view of increasing farm income and future appliance sales prospects.***

THE Arkansas Power and Light Company, which pioneered in rural electrification in the nation, has shown conclusively that golden opportunities await dealers who push productive appliances first in selling to rural sections, P. C. Tucker, general sales manager, reports.

The campaign of concentrating on productive appliances developed after W. M. Shepherd, rural development director of the utility, pointed out in a sales meeting of the company that by selling appliances first that would increase farm income, additional appliance sales would be increased much more rapidly.

As a result of the analysis presented by Director Shepherd, the company began formulating a campaign that was incorporated in its dealer-utility co-operative selling program. Through this medium, water pumping systems, electric brooders, cooling units, hot beds, and other devices that will enable the farmer to obtain increased income, are being sold on large scale proportions.

"Electricity in its application to the farm is a sound business investment; it is actually more necessary on the farm than it is to the rural customer," Rural Development Director Shepherd says. "Problem number one, therefore, was that of increasing the farmers' monthly income."

In a series of meeting with dealers, following the company's annual sales gathering, the Arkansas Power and Light Company stressed this theme of "Push Productive Appliances First." Co-operation from the power company was pledged, and later given.

This co-operation included assistance from dealer co-ordinators, home service advisors, and newspaper advertising getting across to rural residents the value of electric service.

Several projects were worked out by the power company to show dealers just how they could go about planning rural development programs.

Mr. Shepherd explains the setting up of these projects as follows:

"Any project we hope to inaugurate or develop in a community, county, or group of counties is first discussed with the county farm and home demonstration agent of that territory, and the whole thing is developed as a pro-

**Typical cooperative copy of Arkansas Power and Light emphasizing productive appliances.**

TIME TO CHANGE—
Don't do this when you can do this
PUMP WATER ELECTRICALLY
With the modern electric pumping systems and the low price of your electric service, running water is readily available.
Abolish the drudgery of the house . . . the lot . . . the barn . . . and elsewhere around the farm with electrically pumped water.
Avoid back breaking chores . . . enjoy the comforts and conveniences of low-cost electric service . . . spend more time on other and more profitable jobs. . . . Don't fail to investigate the possibilities of a water system.
Our Rural Development Department Will be Glad to Assist You
ARKANSAS POWER & LIGHT COMPANY
Harvey Couch, President
Helping Build Arkansas
Tremendous benefits follow when
ELECTRICITY
Comes to the FARM
Farmers everywhere are learning that their chores are easier and that profits are greater when they use electricity. There has been a 350% increase in the use of farm electricity in the past ten years, doing all these and many other jobs better and cheaper—
—Milking
—Feed Grinding
—Water Pumping
—Small Motors
—Electric Radios
—Good Lighting
—Brooders
—Refrigeration
—Washers
—And Other Uses
Let one of our farm electrical experts visit your farm and talk the matter over with you. He will be able to show you how to save money, energy and time by the proper use of electric service. Ask our local manager to arrange for you to take advantage of this advisory service.
ARKANSAS POWER & LIGHT CO.
HARVEY COUCH, PRESIDENT
HELPING BUILD ARKANSAS
BUY APPLIANCES FROM YOUR LOCAL DEALER

ject of the respective agents. All publicity and credit is given the agents. We assure them that we shall be glad to spend several weeks or even months working on the project, but that it is understood we are doing this to assist them in their own program.

"It is not presumptious for a utility company to offer this service to the agents. Our experience has proved that with the comprehensive program expected of them, and in addition, the A. A. A. and other farm programs with their multitudinous duties, some of them fraught with hours of detail, no county agent ever lived who had the time for all the things he wanted to accomplish in this business of helping the farmer make more money."

### Operating Costs Studied

Careful analysis was made by the power company of the operating costs of the various productive appliances, and these cost figures passed on to the dealers to show them, and in turn show the farmer, how, for slightly increased costs, production can be greatly stepped up and income swelled.

As a further co-operative step, the power company supplies all dealers with lists of all rural customers in their sales territory, revising this list regularly as new extentions are made and new customers connected. This gives the dealers a select mailing list and prospect list.

Information is passed out to the dealers, and through them to the rural customers, showing how the use of the various appliances can swell the farm income. "First in the list of productive appliances should come the water pump," Mr. Shepherd points out. "When we consider the tremendous amount of water—about 300 gallons daily—that is needed on the farm, we cannot deny that a pump operating from a fractional horsepower motor that will pump 1,000 gallons for 5 cents is a productive appliance. Dairy cattle having access to water at all times will produce more milk, and other farm animals are greatly benefitted. Water under pressure for dairy and poultry house sanitation is indispensable."

Hammer mills for grinding grain is another device in the same class. Mr. Shepherd estimates a farmer with five cows, four horses and 100 hens can take care of his grinding requirements in about half a day of grinding per week. Ensilage cutting machinery is another splendid device for farms.

Portable motors for use on various parts of the farm, for operating wood saws and other machinery is also stressed. Milking machines, cream separators; milk, egg and perishable food refrigeration; electric incubators, electric brooders; winter lighting for poultry houses; electric hot-beds; and irrigation systems are stressed.

"We might mention hay bailing, hay hoisting, soil sterilizers, wax and semi-scald heaters for poultry dressing, sheep shearing, and countless other uses that electric service can utilize for operation," Mr. Shepherd says.

"Since practically all of the jobs on the farm can be done or assisted by the sensible application of electric service, dealers should endeavor to sell first the devices that will give the farmers their benefits so farm income can be increased and additional appliances purchased," he points out.

In line with encouraging the dealers to push productive appliances first, the power company has incorporated in its advertising campaign in newspapers several advertisements stressing the benefits of these services to get the rural customers interested in listening to the sales talk of dealers

The fact that during the six month period ending March 31, 1941, nearly 1,000 various productive appliances have been sold in the rural territory served by the company is proof in itself that the efforts of the utility have borne fruit.

Encouraged with these results, the campaign is being continued, Sales Manager Tucker reports. "Geared Sales," the monthly publication issued by the company and devoted to dealer activities is stressing the value of selling productive appliances first. Since the power company under its dealer-utility co-operative sales plan, is not selling major appliances, the field is wide open for the dealers. The power company's major interest is in the load building that will result, not in the profit that might be made from appliances, this being left entirely to the dealers.

"We think that pushing productive appliances first is the greatest sales opportunity that appliances dealers have ever had in the rural electrification territory," Sales Manager Tucker says. "We are going to continue our co-operation and if possible increase it in order that full advantage can be taken by the dealers. To us it is the foundation for an unlimited selling program with greatly increased profits."

---

# Small-Appliance Promotion Has Many Novel Features

***Appliance dealers will find it advantageous to study the appliance selling methods of this Miami jeweler.***

ONE OF South Florida's most successful merchandisers of small appliances is the Duval Jewelry Company, of Miami. Last year the firm's volume on these electrical items came close to ringing the bell at the $15,000 mark. And it is year 'round, not seasonal, business.

China and silver-tableware are jewelry store staples. Therefore, according to Fred C. Slater, Duval's Miami manager, electric table appliances fit naturally into this merchandising set-up. And they seem to blend perfectly into a background designed for the display of "luxury" items.

Rating as one of the city's top-flight business men, Mr. Slater keeps a sensitive finger on the pulse of the buying public in the territory he serves. Feeling the quickening tempo of a stepped-up interest in electrical appliances, about five years ago, he decided to build up his stock in that department to include all types of "traffic" appliances. Practically any electrical household device is available for immediate delivery.

Although Duval's conducts most of its business on the "budget" plan, it lacks none of the "atmosphere" usually associated with the better jewelry stores. Glass-topped display counters of the conventional horseshoe type extend

from just inside the Flagler Street entrance to within a few feet of the main office at the rear of the store. Glass-paneled display cases line the walls at either side. An efficient system of fluorescent lighting brings out the best in displayed merchandise.

Smaller electrical appliances are arranged in wall cases, while the larger items, roasters, vacuum cleaners and hospitality sets, are shown on a three-step display fixture located in the open space between the end of the counter-cases and the office.

**This island display of small appliances just inside the entrance produces store traffic and volume sales.**

### Little Seasonal Business

Duval's operates on a "credit" basis not so much as a business expedient, which is intended to attract a clientele financially unable to buy for cash, but as a major policy designed to iron out seasonal sales peaks and valleys. Practically all of the store's inventory consists of merchandise nationally-advertised at fixed prices, allowing no opportunity for more than a normal mark-up. The firm finances its own deferred-payment "paper" and adds no carrying charge to the price ticket.

In other words, the store imposes no penalty on its customers because they pay by the week instead of "laying it on the line." For instance, Duval's features electrical appliances made by one of the country's most widely-known manufacturers. The purchaser of an electric toaster-set pays no more for it there than at any other local store selling appliances.

At first glance, this system of doing business seems to be rather ill-considered philanthropy — and likely to prove expensive for the firm. But it doesn't work out that way. Over 25 years of close contact with South Florida residents has developed the Duval method of credit-risk selection to a point where losses on unpaid accounts are negligible.

"When we open a new account," explains Mr. Slater, "we try to impress on the customer that his most valuable asset is his credit rating. The worth of other assets may shrink but credit maintained by reasonably prompt payment and consistent use increases in value. We have a great many 'accounts' in the $100 to $125 income-bracket, who would miss a meal, if necessary, rather than skip a payment.

"As a result of our 'budget plan' merchandising system, between 1,600 and 1,800 customers walk the length of the store from the front entrance to the cashier's cage every week. That is traffic we are certain of. And it is made up of potential purchasers, who like our way of doing business."

Duval's cashier is one of the more important factors in the firm's selling system. She functions as a "switchboard" through which the store keeps in constant touch with its customers — and makes the most of it. The young lady in charge receives payments on account with an attitude of sincere friendliness, not with a synthetic smile and perfunctory "Thank You."

The most taciturn customer finds his reserve melting in such a sympathetic atmosphere and chats about the "raise" he got recently, his daughter's engagement, or an approaching anniversary in his family. The cashier makes a note of this information and passes it along to the sales personnel. On occasion, she does some of the actual selling promotion work herself.

By way of experiment, not long ago, Mr. Slater placed a sample of an automatic electric iron with a small display card just inside the cashier's window. These irons retailed at $12.50 and were sold on terms of 50c down and 50c per week. The store sold over four dozen of them in less than one month.

While the Duval Jewelry Company occupies one of the choicest locations in Miami's downtown shopping section, its traffic has been built up by well-considered effort. During the 14 years in which he has managed the store, Mr. Slater has made use of all the usual means of business stimulation, such as consistent radio and newspaper advertising, plus some effective methods of his own devising.

### "Reciprocity Cards"

One of his most productive ways of keeping the firm name before the buying public is his "reciprocity card." All of the store's personnel carry a supply of these cards with them whenever they are outside the store. When making a purchase of any kind, regardless of whether it is an article of merchandise or a service, Duval employes present one of these cards with the money tendered in payment.

Attractively printed, the card reads, "You have just sold an employe of the Duval Jewelry Company. I will appreciate your calling on me for your jewelry needs. It will be a pleasure to serve you." At the bottom the card bears the pen-and-ink signature of the person who presents it.

The entire personnel, which averages 30 people, is organized into a "Go-getters Club," and divided into two teams, each having a captain. Team members report every day to their captains the number of reciprocity cards they have given out. All sales developing from these outside contacts also are reported. The score is read at the club's weekly meeting, which takes the form of a "round table" for the exchange of ideas.

# OPEN HOUSE KITCHEN PARTY SIMPLIFIES DEMONSTRATIONS

By Bryan Pettus

A NEW TYPE appliance demonstration known as the Open House Kitchen Party, which members of the Home Service Department of the Arkansas Power and Light Company have been conducting this year instead of the usual cooking schools, is attracting twice the attendance of cooking schools conducted under identical circumstances and is so popular with both the dealers and the housewives that it seems destined to eventually replace the old type cooking school altogether.

Instead of meeting in a theatre, church basement or community house at a certain time and demonstrating the appliances in a two or three hour cooking and freezing school, the Open House Kitchen Party is held in the dealer's store on a date he has advertised as "open house" and the ladies of the community are invited to come at any hour between two and six o'clock P. M. that is convenient for them and stay as long as they care to.

Holding the demonstration at the dealer's store has many advantages over a cooking or freezing school conducted elsewhere. It is less expensive in that it is not necessary to rent a building or transport and install appliances for demonstration and display purposes. Through such parties held in the store, the dealer's entire stock is on display, and he will make more sales and secure more prospects for more different appliances than he would at a demonstration outside his store. The Kitchen Party brings people into the store who would probably never visit it otherwise, which may result in their returning months later to purchase an appliance they saw while at the demonstration.

The usual procedure followed in a Kitchen Party is to prepare in advance and have on display four complete meals, a ham, several cakes and pies, and a refrigerator full of appetizing salads and desserts. There was a time when food cooked electrically had to be prepared in the presence of the audience or they would go away skeptical, suspecting that the food was cooked by other methods back stage. But this is no longer necessary as the principles of electric cookery are now more generally understood and accepted. The home economist can now devote all of her time to an explanation of the use of the appliances and to the methods employed in the preparation of the foods on display instead of to the actual cooking of the meals.

This explanation is repeated over and over to the different groups that visit the store during the day. Visitors feel free to ask more questions in this type demonstration and learn more about the appliances than they would by attending a conventional cooking school. The ladies are given a 25-page recipe book which contains instructions for preparing all of foods on display as well as a hundred or more practical recipes that have been accumulated and tested by the home service department.

After the explanation of the range and refrigerator, the roaster, mixer and other kitchen appliances are explained and demonstrated.

The group is then conducted to another section of the store where other household appliances, ordinarily a washing machine and ironer, are demonstrated by some one else, usually a salesman for the firm or a representative of the manufacturer or distributor of the appliance. From the laundry department, the group moves to another part of the store where another demonstration is about to begin. This "side show" type of demonstration continues until the dealer has demonstrated all the appliances he cares to demonstrate.

In the case of washing machines, ironers, mixers, vacuum cleaners, sewing machines, etc., the demonstration process is reversed. The person in charge gives a brief demonstration and then invites the ladies to operate the appliance for a minute or two to further demonstrate and emphasize the simplicity and ease of operation. One novelty feature of the washer and ironer demonstration that is very popular is to fill the washing machine with two or three hundred

**Home laundry demonstration at an Open House Kitchen Party. The lady at the ironer is ironing her souvenir handkerchief while the lady at the washing machine has just recovered her handkerchief from the machine and is preparing to run it through the wringer.**

ladies handkerchiefs of assorted colors. The ladies are then invited to recover the handkerchief of their choice while the washer is in operation, run it through the wringer, iron it on the electric ironer and take it with them as a souvenir of the occasion. On several occasions, allowing a spectator to operate an appliance has resulted in the sale of the appliance to that person and has doubtless paved the way for many future sales. Before the group leaves the store refreshments are usually served and gifts and souvenirs distributed.

When leaving the store, each visitor registers on a card which provides space for the listing of appliances they now have and the appliances in which they are most interested. Registering after the demonstration is more desirable than before because the visitor may become interested in an appliance during the demonstration that they had little or no desire for beforehand.

After the registration a drawing for prizes is conducted. The name of each prize, including the food on display, is written on a piece of paper about two inches square and dropped into a box with a number of blank slips. Each visitor is entitled to draw one slip from the box. If she wins one of the food prizes she returns for it after the demonstration is over. Other prizes are given to them at the time of the drawing. Manufacturers and wholesale distributors of flour, sugar, shortening and other foods frequently furnish supplies for the demonstrations, small samples of their products to be given to each visitor and standard packages to be given as prizes to the ladies who win them in the drawing. On several occasions soft drinks, ice cream, tea, coffee and bakery products have been served through the courtesy of the manufacturers of these products.

During the Kitchen Party many dealers prepare special displays and offer "at a price" old, slow-moving and repossessed merchandise and are successful in disposing of numerous items in this manner. In some instances floor sales of these and other traffic appliances have been sufficient to defray practically all of the cost of the Kitchen Party. Other dealers prepare prominent displays of lamp bulbs, appliance cords, fuses, wire, insulators, friction tape and other everyday 5c, 10c and 25c electrical necessities. A department of this type is not only profitable in itself, but is an excellent means of tremendously increasing floor traffic.

Many dealers materially increase attendance at their Kitchen Parties by letting church organidations, P. T. A.'s, civic clubs and other similar organizations serve as sponsors. The sponsoring organization is given a stipulated sum, usually five or ten cents, for each person they induce to attend. Quite frequently ladies "drop in to register" for the benefit of the sponsoring organization, but they usually become interested in one or more of the demonstrations and stay. It is interesting to note that comparatively few leave without seeing at least one complete demonstration.

The Open House Kitchen Party, as conducted in the dealer's store, is the original idea of Miss Elizabeth Mosley, of the Home Service Department of the Arkansas Power and Light Company, and the first demonstration of this type was conducted in April of this year. The average attendance of these Kitchen Parties has been considerably above that of conventional cooking schools.

**A refrigerator full of frozen salads and desserts has sold many refrigerators. Large recipe books containing hundreds of practical recipes are given to the ladies who attend the kitchen parties.**

**Food prepared in the electric range is always a source of interest. All food used in these demonstrations is later awarded as prizes. Miss Elizabeth Mosley, home economist, is shown explaining the features of the electric range.**

# MERCHANDISING MEMOS

## *Spotlighting some pointed appliance sales suggestions*

**By Roy A. Palmer**
**Merchandising and Advertising Manager, Duke Power Company, Charlotte, N. C.**

EVERY once in a while a salesman gets into the dumps. Everything goes wrong, nothing goes right. There's nothing unusual about that—everybody has that experience occasionally. But with salesmen it often seems to "take" more effectively than it does with people in other professions.

The other day I ran on to a salesman who was in just such a fix. He had lost three refrigerator sales to competitors; his credit manager had turned down two more; he didn't have any more live prospects, and he couldn't sell those on his list who were only mildly interested. The sun was shining, but blue glasses wouldn't make the world look bluer to him.

A little conversation between us revealed some of the reasons for his momentary lack of success. He was a good salesman. He had prize-winning records for several years to attest to that. But we both agreed that probably his major trouble was that he had been selling electric refrigeration for all those years and had gone stale. Of course, he knew the refrigeration story. He had told it for so long that he thought everybody knew it.

It's true that the public knows that electric refrigeration is practical and that it's economical besides having many other advantages that have been pounded home by salesmen and advertisements year after year. Yes, and they know about many of the sales features of this year's models. They know a lot of things about electric refrigeration, but—they want to be *sold*. They want to hear some of those things they know told to them in a convincing manner from the standpoint of advantages to them. That means *personalized* selling—selling with a human interest viewpoint.

Today's electric refrigerator is an infinitely better product that that of five years ago. Constant research and improvement have had a far-reaching effect on performance and dependability. That means greatly lessened minor troubles and fewer breakdowns. Mechanically that may be of passing interest to the housewife but it's much more important to her to know that this means she won't be likely to find baby's milk sour or that the load of perishable things she brought from the grocery yesterday won't be spoiled by unexpected and perhaps frequent failure of the refrigerator.

SALES JINGLES
A "JUKE BOX" FAN WAS PHIL AND A LOT OF TIME HE'D KILL, WHEN SUPPOSED TO BE OUT CALLING ON A BUYER -
OR ELSE THIS DOGGONE COOKIE WOULD BE OUT PLAYING HOOKY AT A BALL GAME OR A POOL ROOM OR A FIRE -
FIRE!
AT WINDOWS HE WOULD STOP - FOR HE LOVED TO "WINDOW SHOP" - OH HE LED THE LIFE OF RILEY - IT WAS GRAND.
DEMONSTRATION
SO HE IDLED THROUGH THE DAYS - IN A BLISSFUL MENTAL HAZE - BUT THE TROUBLE WAS, IT ENDED — PHIL GOT CANNED -

Then there are the new features of today's machines. Moist cabinets, what will keep vegetables and fruits constantly fresh, are an asset that help the salesman to sell higher-prices boxes. That's something new; particularily, since the bugs have been worked out of previous attempts along this line. Isn't it convincing that a bunch of parsley, wilted by the hot trip home from the grocery store, perks up and is as fresh as though newly-picked after it rests in the moisture-saturated section of the new refrigerator? Imagine how some housewives react when they learn that the corsage which a friend had given his wife on her anniversary was worn ten days later, fresh as ever, after being stored in the cold, moisture-laden atmosphere!

Frozen foods have opened up a new service to be performed for the housewife. Today's boxes have special compartments for storage of these items. All housewives know about frozen foods. Why not build a story around their use — fresh strawberries for Thanksgiving dinner — and make their mouth water for the delicacy *and* the new refrigerator.

Everyone knows about lower prices, too. And that's important in the selling of refrigerators, but let's put a little romance in our story. Think of the long-haired scientists who have worked unceasingly in the laboratories to simplify and make better today's machines so that you, Mrs. Prospect, can buy it for less money. Engineers worked on methods of production, new machinery and materials, so that every hard-earned dollar invested will buy more than ever before.

In selling an appliance like an electric refrigerator, which has had such acceptance over a period of many years, its easy to grow stale on our story because we've told it so often and so long. Everyone hasn't heard that story but for our own good, as well as for the sake of our prospects, we must find ways and means to dramatize our sales presentation. It peps up our own interest, new prespects are easier to find, and it's a heap easier to overcome competition. Then the sun shines brighter and all's right with the world!

# Overhead Down -- Sales Up!

***That has been the trend of business for the Home Electric Co., of Galveston, in its new carefully selected location.***

**By Chas. N. Tunnell**

EDDIE DELANY is one electrical contractor-dealer that has made money every year since entering business in 1921 — even during the depression years. Eddie is no wizard; he is a good merchant. His methods are not new or startling—they are simply the application of business principles that have existed for many years. His entire management plan could be summed up under these headings: low cost operations; know the exact cost of every job; push the new ideas; dramatize selling; sell above competition with standard merchandise; advertise religiously; and make a profit on every sale or job.

Eddie DeLany operates the Home Electric Company, in Galveston, Texas. He has been doing a good job in this business for the past 20 years; he has been doing even a better job for the past two years, for at that time, he made an investment that reduced his operating expense. Eddie was leasing a down-town building 18 by 120 feet in size for $145 a month. He wanted to move out of the congestion of down-town traffic; but he dreaded to lose his over-the-counter sales. Finally he moved out in a residential section on a main thoroughfare and erected his own building of brick, steel and tile, 40 by 104 feet in size. This building is easy to find and there is plenty of parking space. It provides a better retail store, plenty of room in the shop for the trucks to be loaded inside, a big stock room and other facilities. The payments are $100 per month.

Not only did Delany reduce his rental, but instead of losing his retail sales, these sales have doubled, thereby reducing his percentage of operating overhead on sales. Customers like to buy from him because it is easy to park.

"The way to low cost is to know cost," says this contractor-dealer. He finds it essential in his business to know cost and to be able to prove his cost to a customer. A job ticket is filled out in duplicate for every job done by this firm. On this ticket is a list of all the supplies and merchandise taken out, a place on the back for reporting any materials checked back in, and the time schedule. On the duplicate job ticket which the electrician must fill out is the time schedule so that the exact time required on the job is recorded.

### Customer Relations Helped

At any time a complaint is made about a job or installation charge, this contractor-dealer does not resort to guess work. He immediately invites the customer to check the records with him, and usually they are able to find material and extra work that the customer did not recall. Or in some instances, the customer may think the electrician took up too much time on the job whereas the ticket may show that only a portion of the time was charged out to this job. These tickets are a convincing record for customers and furnish an accurate check for the dealer.

"We carry no price competitive merchandise other than the good standard lines," says this contractor. "We do a good retail business in the store for fixtures, probably 75 per cent of the fixture business in our market; and we do a good contracting business. We do mostly commercial contracting and some of the better residential work.

"We never insult our prospects by telling them they are crazy for buying something cheaper. We take the time and patience to try and sell them something better. If a prospect tells us that "So-and-so" has quoted them a cheaper price, we explain that we could use different material and do the job at such a price, but that we use only standard merchandise and do a class of work that will give better value in the long run. Many times the prospect is conviced and we get the business—if not, we find it better to pass up a contract than to take it at a margin that protects no profit. We have many jobs in our city that we did 20 year ago that have never had a service call as yet.

"Most of our customers are people we have served for years, many of them are the newly married couples whose parents we have served for many years. But even then, we don't just depend

**Effective night lighting of Home Electric Company.**

upon reputation to carry us through. This is a day when people want values, but not necessarily cheaper prices. We have to give them something tangible . . . we may even break up a plate or a switch to demonstrate a good switch or a bad one. We have one demonstration gadget displaying receptacles, switches, etc., that have been cut away to show the construction. One receptacle may be on this display at 11c, one at 32c; and the switches may range from the cheapest to the highest.

"By having something that you can place in the prospect's hand and let him feel it and see it, it is much easier to get over a comparative story and to prove a point that better merchandise will stand up longer and be cheaper over a period of years.

### New Lighting Profitable

"Fluorescent lighting has been the salvation of the electrical contractor," says Eddie DeLany, who is successful in selling a good volume of this business. Mr. DeLany finds that all retailers such as operators of ladies specialty shops, men's clothing, beauty shops, insurance offices, banks, and other businesses are ideal prospects for this type of lighting.

"The only way to sell fluorescent lighting is to demonstrate it," he says. "Not one out of one hundred people will let you take out such a light that has once been put in. We have installed this lighting in a number of stores . . . one place we sold $1800 in new lighting in 1940; then nine months later went back and sold $1200 in fluorescent lights. The customer is highly pleased and even advertises to invite people to inspect clothing under this type of light."

The Home Electric Company has been successful in selling fluorescent lighting in office buildings, insurance company buildings, etc., by first getting one or two floors at a time, and soon the customer decides to go all the way. This dealer finds that 200-watt fluorescent lights will do what 500 watt lamps have been doing. He tells the average prospect that fluorescent lighting will pay for itself within two years in savings on the light bill; however, instead of urging such an installation to reduce the lighting cost, he recommends such an installation to have more and better light for the money. He shows merchants and others they can use lights longer and more generally and yet not pay any more than their present cost.

Although one installation of fluorescent lighting or any other electrical merchandise usually leads to additional sales, Eddie DeLany does not sit idly by and wait for business. Ninety per cent of his volume comes to him at the store or by telephone; but he realizes that much of this business which apparently comes to him is business that he has cultivated before and is just paying off for some personal contact, direct mail advertising or other form of advertising.

This dealer distributes a large number of catalogs each year. He uses various mailing pieces and other advertising material that is obtained through the manufacturer and bearing the dealer's name. "It costs us about 7c each to put a catalog in the hands of a prospect," this dealer says, "but this is good business. We get a list of all permits issued, then contact these people in person or by telephone; follow with a catalog."

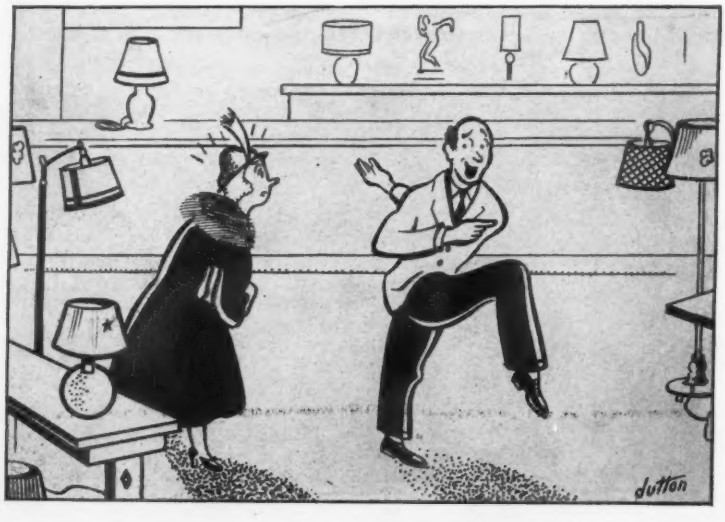
The Home Electric Company does not fight for the price line of business or to be lowest bidder on contracts. However, this dealer is able to compete with any one including the mail order houses and the big chains. They never under sell him, quality considered, for he sells only standard lines. In fixtures, his entire store ceiling is a constant display—different sections and groups controlled by wall switches. Along one wall is a $19.95 bracket of fixtures for the cottage—on the opposite side is a group for $29.95 to meet the price competition; however, over the store are fixtures that sell at the top brackets.

"Our volume of buying enables us to get a good deal from the manufacturers," says Mr. DeLany. "We are not bothered by chains or others, for the price specials that they sell for 85c each can be bought by us for 22c each in lots of 100 and resold at 75c to protect a good profit.

### Discourage Price Shopping

"But for the most part, we get people away from price shopping. All fixtures in the store carry a number, but not a catalog number that will identify the fixtures to the curbstone price cutters that may use our store for display and then undersell us. We keep all the standard catalogs; but we use a book where each fixture number is recorded, the list price of the fixture, the price of it installed, then a code cost number. By looking at this code cost figure, and by talking to the prospect, we are soon able to determine if the customer will pay list or if we will have to give a discount to be in line," this dealer-contractor explains.

"We even change our fixture numbers from time to time so that the price sellers will not get our fixtures identified then tell our prospects they can get the same fixtures for less. We carry only good lines and give a type of service that enables us to tell our customers we have something that is smart in style and servicable and that it is priced at a good value regardless of first cost."




**"Was the figure lamp you had in mind something like this, Mam?"**

# Fiberglas Electrical Insulation Influences Equipment Design

MODERN electrical equipment has been undergoing an evolution in recent years; in this evolution an important factor has been the utilization of Fiberglas insulation, according to reports from the field received by the Owens-Corning Fiberglas Corporation.

This new glass insulating material is being employed today by the electrical industry to improve the performance of its products, to deliver more power output per pound, to save important space and weight on ships and in planes, as well as to serve in industry generally.

Quietly, unobstrusively, the industry has brought about this evolution, both in tough job applications where glass insulation withstands high heat, high humidity, corrosive vapors, as well as on other applications where Fiberglas provides reserve strength to take overloads without flinching. These performance advantages have given the consumer a dollars and cents profit derived from lower maintenance costs, less down time.

America's progressive manufacturers of electrical equipment have been quick to recognize the unique advantages of Fiberglas as an inorganic insulation and utilize these advantages in the design of new equipment. It is being applied on equipment ranging from tiny damper motors with an input of only 10 watts to giant 40,000 horsepower motors, and ranging from domestic washing machine motors to mine locomotives. It is also being used on many types of generators, transformers and other electrical apparatus.

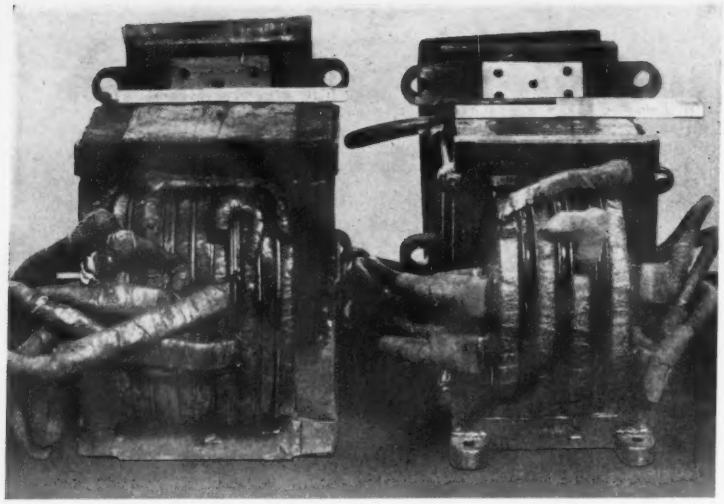
Many users of Class "B" motors declare they have standardized on Fiberglas insulation because of its superiority for such motors. This new pure glass material is more completely inorganic than other types of Class "B" insulation. Users declare that it provides better heat resistance, as well as resistance to acids, oils and corrosive vapors, and that its individual fibers do not absorb moisture, as do other forms of fibrous insulation.

Textiles made of glass in fiber form have been available to the electrical industry as an insulating medium for only a few years. Less that a decade ago, Fiberglas was a laboratory curiosity born during the depression years. Today this new material is manufactured in quantity as a quality controlled product.

The unusual combination offered by Fiberglas of great tensile strength, high temperature resistance, inherently good dielectric strength, insulation resistance, and abrasion resistance when properly impregnated with electrical impregnants or varnishes, has opened new opportunities to the designer of electrical apparatus and appliances.

Layers of Fiberglas insulation thinner than the layers required when other inorganic materials are used provide the requisite insulating qualities. For example, asbestos—which has the requisite temperature resistance for many electrical applications — must be employed in greater thickness than Fiberglas insulations because of its lack of strength. These thin layers tolerate higher temperatures than have hitherto been practical with organic insulating materials. The allowable temperature rise when cotton is used, for example, is 55°C as compared with

**Illustrating the reduction in size and weight of a 75°C. temperature rise (Fiberglas insulated) totally enclosed motor contrasted with a 55°C. temperature rise (cotton insulated) totally enclosed motor of identical horsepower. Fiberglas motor is at the left.**



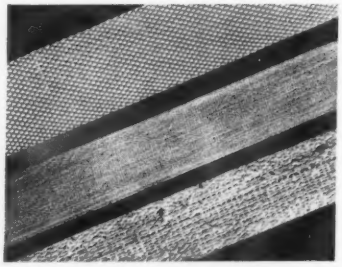
**Size and weight reduction can be gained on types of apparatus other than motors. Note reduced dimensions of transformer at right, insulated with Fiberglas, as compared to the one at left not insulated with Fiberglas. Both transformers are of equal capacity.**

75°C when Fiberglas is used. In the field of space reductions at high temperatures, therefore, Fiberglas stands unique.

These advantages or Fiberglas have already been put to good use in the production of more compact transformers, motors, generators and similar types of equipment. Reduction in the size of electrical equipment is frequently accompanied by reduction in cost as well as weight.

Leading manufacturers have recently placed in effect reductions in the price of Class "B" insulated equipment. For example, on a 25 horsepower motor, the additional charge for Class "B" insulation instead of Class "A" has been reduced 25 per cent. For a 1½ horsepower motor, this reduction is 33 per cent. The additional charges for Class "B" insulated equipment are for Class "B" motors in the same size frames operating at the same temperatures as the Class "A" equipment. These electrical manufacturers now offer a smaller size Class "B" insulated motor operating at approved temperatures higher than temperatures permissible with Class "A" insulated equipment. These smaller size motors now cost only half the above additions for Class "B" insulation.

Also important in these critical days is the availability of this improved insulation. Made of raw materials plentiful in the United States, Fiberglas production does not depend on foreign sources of supply.



**Illustrating the comparative uniformity of Fiberglas, cotton, and asbestos tapes. Lower, asbestos. Middle, cotton. Upper, Fiberglas.**

The superior characteristics of Fiberglas insulation have been proved in the field. The following cases are typical:

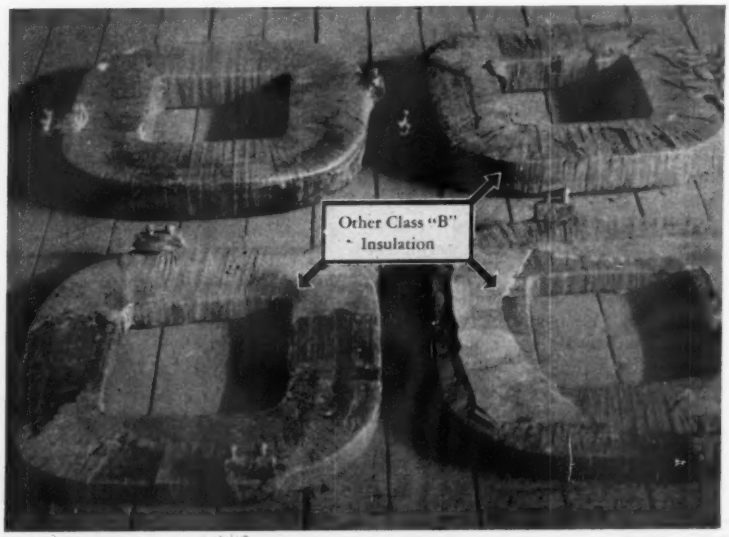
The National Electric Coil Company, supplier of replacement coils to the mining and steel industries (where excessive heat, overload and moisture conditions are common), states that it has standardized on Fiberglas as its Class "B" insulation. This standardization of Fiberglas is typical of many manufacturers supplying this field.

After comparative tests of all types of Class "B" equipment, the Pittsburgh Coal Company reports it has standardized on Fiberglas insulation because it was found to make possible longer motor life and lower repair bills.

A mid-Western steel company informed Owens-Corning that it has standardized on Fiberglass for all its motors in one of its largest plants, and reports a saving of $24,000 in maintenance costs in one year's time.

The Standard Dry Kiln Company is installing Fiberglas insulated motors direct-connected to fans inside their kilns and operating in tannic acid vapor under relative humidities approaching 100 per cent and kiln temperatures of 210°F. Previously, no insulation would stand up inside the kilns and shaft-driven fans or other arrangements with the motors installed outside the kilns had to be used.

(*Continued on page 54*)




**Field coils from a 13-ton 64-hp 500-volt mine locomotive after low voltage had caused failures. Coil, upper left, was insulated with Fiberglas, others with asbestos. Note splendid condition of the Fiberglas coil.**

# Simple Accounting System Requires Only Two Forms

By Nat M. Johnson

CONTRACTORS who want a simple, compact and complete accounting system will be interested in that evolved by Robert H. Shaw, owner of Shaw Electric Company, Greenville, Miss. The foundation of the system is the work order, which serves also as a mechanic's work card. One style of card serves for large or small jobs, contract or any type of work. It is a thick paper sheet, 5½ x 9½ inches in size.

Only one copy of the order is issued, no duplicate being necessary. A large job may require several sheets, as may even a small job if two or more men work on it, as the system requires a separate card for each workman.

A pad of work orders is kept beside the telephone, always handy at the desk, and when an order is received by telephone or in person, it is written up, showing name and address of customer, name of person ordering work, and listing the work to be done.

When the job is assigned to a mechanic, his name is inserted at upper lefthand corner. Several lines on the sheet are to be used for materials. Above these lines, column head at left is "Est.", and next to it is "Used". After the order is made out, Mr. Shaw fills in material likely to be needed, listing it under "Est." and this the mechanic takes out to the job. Upon his return an "X" is placed opposite all materials brought in, while those used on the job are entered in "Used" column and prices extended at extreme right. At bottom of sheet are shown charge for labor and total price for the job.

A space is provided for writing in the contract price of a job when a quotation is given in advance. Adjoining this is a column headed "Cost"; then another, "Profit or Loss". Naturally, these two columns are not filled in until the job is completed and summed up before filing. But it will be seen that each ticket gives a complete record of the job, even down to profit or loss.

Mechanics keep the work orders until Friday evening, when they are turned in to the office and the men's time is checked from the cards. It will be seen that each man's cards give an accurate account of his time for the week and avoid the necessity of keeping separate time tickets or time record.

The thought may occur that there is in this method considerable danger of losing a card now and then and, therefore, failure to collect for a job should it be for a credit customer. To avoid this, cards are numbered and it is a simple matter to keep a record of numbers assigned to different workmen, and each workman must account for all numbers assigned to him. Since the card is their only record of time at work, they are anxious to turn in all cards to account for their full time. On the card are spaces for starting time and closing time on the job. The men's time is made up on Saturday from the records of work cards turned in to the bookkeeper.

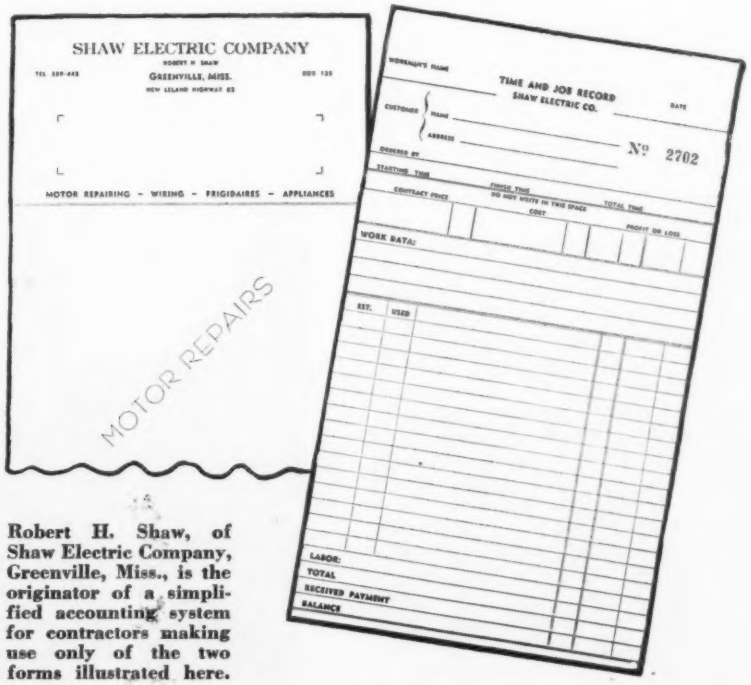
The bookkeeper then takes the work cards and from them makes entries on customers' statements, beginning this on Saturday morning. On the customer's invoice are shown the date, job ticket number, and total amount of labor and material. Material is not ordinarily itemized unless a special request is made for that information.

Motor rewindings are handled separately. Three types of invoices are made out: one for motor rewinding or repairs, one for merchandise sales, and the third for wiring. Merchandise sales include all major and minor appliances, whether cash, time payment, or 30-day account. Most work comes under the classification of "wiring."

### Records Quickly Available

Their filing system is simple and makes any work card quickly available. Three compartments for work cards are used, one for current ones which have not been paid, one for those which have been paid, and the third for contract work, there being a folder for each contract, containing work orders and complete data on the job.

All in all, it's a simple, concise and efficient system. Should there be any questions later about a job, the customer's file can be produced quickly and all information on the job in question, or any other jobs for that customer, are at hand.




**Robert H. Shaw, of Shaw Electric Company, Greenville, Miss., is the originator of a simplified accounting system for contractors making use only of the two forms illustrated here.**

# Flexibility of Fluorescent Lighting Indicated in Unique Florida Installation

LIGHTING OF the new Tramor Cafeteria, of St. Petersburg, Florida, recently completed by Electric Service Co., of St. Petersburg, was an interesting and novel experience because it presented unlimited opportunities to apply the virtues of fluorescent lighting.

The interior layout and design was the result of many months' study and tireless effort of Lander Haige, head of the Tramor Cafeteria system, who operates five up-to-date cafeterias in St. Petersburg and one in Orlando.

The design of the entire electrical and lighting system was engineered by Ed Elston, owner of the Electric Service Co., who has designed and built some of this city's most intricate electrical systems.

The accompanying photos are unretouched and serve to illustrate the clearness of detail which can be had with fluorescent lamps in relation to photography.

The Tramor Cafeteria is located in an arcade building, the entrance of which is placed between two thoroughfares and projects out into the arcade in a semi-circle. It is constructed of glass brick and is lighted from behind with gold fluorescent lamps. The dome of the entrance is stepped back and shadow lighted with red, white and blue lamps. The arcade is lighted with 40-watt white lamps leading the way to this inviting entrance.

The foyer contains a 10-foot circular mirror overhead. It conceals a group of pink fluorescent lamps.

The lounge is tastily decorated and lighted with 30-watt soft white lamps mounted end to end in a ceiling cove.

The serving counters are nearly 60 feet long and were made especially of stainless steel for this job. Soft white lamps mounted in flush boxes with prismatic glass panels light the food displayed without the slightest trace of color distortion. These serving counters are separated by a shoulder high partition of etched plate glass and at no time can the serving line be seen from the dining room.

The soft white lamp was used wherever food was served or eaten and, according to the contractor, these were the first soft white lamps used anywhere in Florida in a similar installation.

The main dining room was lighted with two rows of lamps mounted on Wiremold fluorescent channel with the ballasts in the raceways. Over 1,100 feet of No. 3,000 Wiremold was used in this installation including 250 high power factor ballasts, also from Wiremold. One row of gold and one row of soft white lamps were installed.

The ceiling is acoustically treated and has built-in radio speakers that supply the diners with music.

The entire cafeteria is air-conditioned, and while no exact data is available, it is safe to assume that a smaller air-conditioning unit is being used than would have been necessary if the system was designed for filament lamps.

The walls of the dining room are paneled with South American wood called prima vera with plate glass panels of corrugated blue glass etched with palm trees in white and lighted with blue fluorescent lamps.

It is interesting to note the treatment of the curved sections of cove in which straight fluorescent lamps were used, evidencing the flexibility and versatile uses to which the lamp may be put. It

**Two views of the recently completed Tramor Cafeteria, of St. Petersburg, featuring an unusual fluorescent lighting installation by the Electric Service Company.**

also answers the question asked many times as to why this new light source is not made in bent form.

A total of 456 fluorescent lamps were used on this job and in no case are any of the lamps exposed with the exception of the kitchen where industrial units were used.

The large kitchen is bright and clean appearing under fluorescent light.

# Business Built on Trouble Calls in Oil-Field Town

CORRECTING the errors committed during a mushroom growth has provided more or less steady work for Sale Electric Supply, Kilgore, Texas, in the past few years. Kilgore is in the heart of the East Texas oil field, said to be the world's greatest producing field at the moment. Some 10 or 12 years ago, as the town practically sprang up over-night, wires were hung in most any manner, just to get lights to burn.

During the past four years, substantial growth has meant the replacing of shacks and boom-time buildings with permanent ones; and the remodeling of the better buildings and houses which were sufficiently well constructed to justify modernizing.

W. M. Sale has operated the firm of Sale Electric Supply in Longview, Texas, since 1931. In March, 1935, the Kilgore store was established, with J. C. Estes in charge as manager, just at the "psychological" time to get in on the better building and wiring era.

Much of their work at the present time develops from trouble calls, Mr. Estes said, as there is still enough of the original shoddy wiring left to be giving trouble right along.

When an electrician answers a trouble call, he makes a report of conditions and then Estes goes out and tries to sell the owner an adequate wiring job—and he has been quite successful.

He believes this plan should work elsewhere because in every city there are business buildings and residences erected when there were not so many demands on electricity, and their wiring will not care for present-day requirements. If the actual wiring is adequate, the fixtures may be out-of-date, so the electrical dealer has an opportunity to sell new fixtures and lamps if he can convince the owner of the advantages and economies of modern well-designed fixtures.

"You just stumble on a lot of business if you're on the job," Mr. Estes said recently. "Every call means a sales possibility. But the dealer must have the material on hand, whether it is fixtures or wiring supplies, or both, and also be prepared for immediate service. Normally we work four men and can nearly always answer a trouble call within five minutes.

"Having a place of business well located, where people can find you, is important in this line of business. Another thing of importance is to be able and willing to give information. We figure on many jobs that we don't get, it's true, but we do it graciously and the more graciously we do these things, the more jobs will be coming our way."

The firm has had several big jobs in recent years also, on schools and other public buildings. Some of this work is handled by Mr. Estes and some of it by Mr. Sale at Longview.

Mr. Estes works very closely with general contractors and they get probably half of their business on cottages, without the formality of estimating the job. This is because he has gained the confidence of the contractors and it means that the worry of competition is over for him on many such jobs.

On commercial work, it is different. This practically always involves an estimate and sometimes against keen competition, but here again, work with contractors and his reputation help him.

Estes is a strong believer in friendliness, for its own sake, and as a business stimulant. He makes it a point to speak to everybody he knows, and wants everybody in town to know his name and to think of him first when electrical service is needed.

The firm has had a nice business in attic ventilation. In getting this sort of business, Estes picks his prospects and works on them systematically. After selling one person, it is always easier to sell that person's friends. Each satisfied owner will provide a number of leads, which give him plenty to work on, he said.

The firm does not handle major appliances and does not do a great deal of business in small appliances, its main business being in contract work and fixtures. However, a few such merchandise items as fireplace sets, fire screens and irons, and mail boxes, are sold.

**Attractive display floor of Sale Electric Supply, of Kilgore, Texas. The business thrives on rewiring of hastily installed jobs during the early "oil boom" days.**

# Churches Good Prospects For Electrical Equipment

CHURCHES everywhere of all denominations are taking advantage of modern electrical improvements. Wide-awake contractors who know what churches need and who are willing to study the problem with the church officials are sure of interesting and profitable contracts.

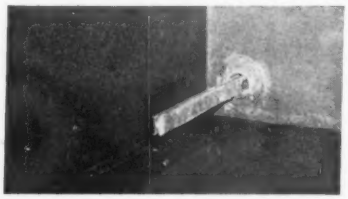
A case in point is the Buffalo Avenue Baptist Church, of Tampa, Florida, whose electric system begins with neon lights on the outside and ends with an electrically heated baptistry.

Problems of this church are probably similar to the problems of many other small churches. It seats 1500 persons. The heating of the baptistry came about almost accidentally. A missionary in a Tampa hospital wanted to be baptised but his physician would not permit it unless the water was heated. Tampa Electric Company, the local utility company, loaned the church some immersion units for the emergency. After it had passed, the church discussed heating the baptistry permanently. Oil, coal and gas were considered. The tank holds 5,000 gallons of water. One of the strong points which led to installation of electric heaters was the matter of oil or gas odors in the church. An electric unit was cheaper to install because the proper type of gas or oil heater would have needed a flue and none was provided in the rear of the church.

The installation was engineered by W. H. Johnston, an official of the church, and chief engineer of the Floridan Hotel. He installed two 4,000 watt immersion units and these have been doing the work perfectly.

While the Buffalo Avenue Baptist Church does not have true air conditioning, it does have four 48-inch exhaust fans installed behind grills in the back of the church which change the air every one and a half minutes. Officials said this rate of air flow seemed to be about right and the audience did not become sleepy from stale air.

The Buffalo Avenue Baptist Church has been broadcasting each Sunday morning over WDAE for several years, so it was but a natural step to install a loudspeaker system in the church. An innovation in this system is the phonograph turntable and automatic provision for playing appropriate records until beginning of the actual service.



**One of the 4000-watt Chromalox immersion units used for heating the 5000-gallon baptistry fount.**

**Wide awake contractors have found churches good prospects for a wide range of electrical equipment. The Florida church shown here makes use of neon sign lighting, large exhaust fans, a public address system with automatic record player, and an electrically heated baptistry.**

The church has been rebuilt three times in five years, it has 22 full time foreign missionaries in the field, all paid by this church without pledges of any kind from the members. It has a membership of more than 500 and Sunday attendance is usually much larger. Rev. Roy Mason is the pastor.

## Alabama Highway Lighting Project

A TYPE of equipment deemed quite suitable for the lighting of main traveled thoroughfares in the South and Southwest where distances are far and funds limited was used in the recent illumination of a five-mile stretch of the super highway between Birmingham and Bessemer, Alabama. The project was sponsored by the Bessemer Junior Chamber of Commerce in line with the "Safety With Light" program of the United States Junior Chamber of Commerce.

The installation was made by

**Charles E. Oakes, president of Birmingham Electric Co., congratulates the president and vice-president of the Bessemer Junior Chamber of Commerce which sponsored the project.**

the Birmingham Electric Company under a contract with the State Highway Department and at an approximate cost of $20,730, or $4,120 per mile. The utility furnished the equipment, installed it and will maintain it, as well as furnish the electric energy, receiving in turn a stipulated rental per year per light, or a total of $11,181 annually for the entire installation.

The equipment includes 227 fixtures (Westinghouse Reflectolux, Jr.,) each of 6,000 lumen capacity. These units are mounted on 35-foot wooden poles (class 4) which are placed 100 to 125 feet apart, staggered, on both sides of the two-lane highway. The closer spacing is at points where local traffic is heaviest. Two lights are placed at each intersection.

The poles are placed 14 feet from the edge of the road on either side, as a safety precaution, and the fixtures are mounted on 16 foot mast arms. These mast arms (products of Utilities Service Co.,) have a two feet upswing, this permitting the use of shorter poles, especially in low places along the highway. The light centers are 25 feet above the surface of the road. The units are focused on a spot two feet over the edge of the road. The large type globes used add to the daylight appearance of the equipment. The fixtures and mast arms are all galvanized.

No. 6 hard drawn bare wire was used in the installation, which carries two wires part of the way. Open fixture wiring was also used. Four 20 kw constant current transformers were placed at intervals along the highway. Sixteen of the lights were placed on an existing residential circuit, but elsewhere the highway cut through a section little developed as yet. Each circuit is cascaded.

Transformers are controlled by switches and protected by Novalux protectors which will remove the transformers from the line in case a circuit is broken for any reason. There are four under ground dips in the wiring along the way.

This type of low cost illumination might appear to be spotty from a casual glance or from the appearance of photographs, and it would be if installed in the manner of old-time street lighting which distributed much of the light to the roadway at high angles which thus directed pavement reflections skyward, rendering the road surface black when viewed from the driver's seat. In this type installation, the pendant luminaires deliver the incident lighting to the pavement at low angles. This places surface reflection within the normal vision of the driver and thus renders the pavement bright when viewed from his position at the wheel of the car. This causes any person or object on the road to stand out in bold relief, in fact to be silhouetted against the brightness of the pavement. The motorist in driving at normal speed sees not just one spot on the highway but the wide expanse for several hundred feet down the road.

The installation was dedicated with appropriate exercises and with Highway Director Chris J. Sherlock throwing the switch. He pronounced it one of the longest lighted highways in the South and said it would be a real factor in reducing accidents and saving lives. He quoted National Safety Council figures to show that 70 per cent of traffic accidents occur at night, although only 30 per cent of the traffic moves during the hours of darkness. The lights will burn from dusk to dawn, he said.

## Why Measure Lighting In Foot-Candle Units?

*By R. B. Roberts**

The new lighting tool previously referred to, the fluorescent lamp, terrifically widens the commercial lighting market. We know that there is no such thing as too much good lighting for seeing and selling. All artificial lighting intensity standards are and must continue to be compromises with daylight. And yet we evaluate lighting intensities not on the basis of daylight, but on the basis of the light from a hypothetical candle flame. Our customers are not scientists; they are business men, and while every one of them experiences daylight daily and seldom, if ever, even sees a single standard candle burning one foot

*(Continued on page 54)*

*Excerped from an address before the eighth annual conference of the Southeastern Electric Exchange in Augusta in May 1941. Mr. Roberts is general sales manager for Florida Power & Light Co., Miami.

**Night view of the new highway lighting installation between Birmingham and Bessemer. This type of construction has been called ideal for the South and Southwest where distances are far and funds limited.**

**Night view of Atlanta Biltmore Hotel, headquarters for the national IES convention.**

# Georgia Lighting Men Prepare For National Convention

LIGHTING activities in Atlanta and Georgia will reach their 1941 climax in September when the Illuminating Engineering Society holds its annual national meeting at the Atlanta Biltmore Hotel, September 22 to 25.

Plans for both the business sessions and entertainment are being completed rapidly, and there is every indication that a new attendance record may be established.

Detailed information on the program has not been announced. The first full day of the convention, however, will take the form of a national lighting sales conference and papers and discussion for this session will be limited to the commercial aspects of lighting practice. The three following days will be devoted to technical discussions and papers comprising the IES meeting proper.

Of particular interest will be the lighting exhibits that will be on display throughout the meeting. More interest than usual is being centered in the exhibits, first, because this is the first exhibit to be sponsored by IES in several years, and second, because this is the first exhibit conducted since the introduction of fluorescent lighting and it is anticipated that a considerable part of the exhibit will cover fluorescent lamps, fixtures and auxiliaries. Invitations to the exhibit will be extended to electrical contractors, wholesalers and others in and near Atlanta.

**Newly elected officers of the Atlanta Lighting Luncheon Club, an organization that formed the nucleus for the recently chartered Georgia Chapter, IES. The lighting club is continued as an unofficial function of the Georgia Chapter. Left to right are: vice president, Hugh Saussy, Georgia Power Co.; president, Hamilton Corey, Graybar Electric Co.; treasurer, Al Bruner, Campbell Coal Co.; and secretary, Clarence Holland, Georgia Power Co., all of Atlanta.**

**Proud of their charter as an IES Chapter are these men who formed the first board of managers of the Georgia Chapter. Left to right are Ivar Stockel, Benjamin Electric Mfg. Co.; Walter Wildeman, Westinghouse Electric & Mfg. Co.; Chas. Burch, Curtis Lighting, Inc., chairman; James F. Whitehead, Georgia Power Co., secretary; and H. M. Horton, General Electric Co., all of Atlanta.**

Preparations for the convention are being completed by a local committee, headed by Philip Peeples, of Georgia Power Company, as general convention chairman. Assisting him are a number of subcommittees headed by the following men: Transportation, T. T. Peake, Georgia Power Co.; Exhibits, C. M. Wallace, Georgia Power Co.; Publicity, Jess Long, Georgia Power Co.; Sports and Recreation, C. H. Roberts, General Electric Co.; Hotel Arrangements, M. E. Olson, General Electric Co.; Entertainment, M. L. Whitman, manufacturers' agent; and Banquet, F. E. Lott, Economy Electric Supply Co. The local convention committee cooperates closely with G. K. Hardacre, chairman of the National Convention Committee and treasurer of IES, in making preparations for the meeting.

The holding of the annual convention of IES in Atlanta has served to stimulate a great deal of interest in activities of the Georgia Chapter, of IES. Although less than two years old, this chapter has progressed rapidly in organization and now includes more than seventy members. Meetings have been held at regular intervals and programs of a high quality have been presented.

The Georgia Chapter was chartered in August, 1939, with a membership of 34. This was the first chapter of the Society to be established in the Southeast and the members felt their responsibility as pioneers in this section and have attempted to fill this responsibility by promoting the interest and purpose of the Society "for the advancement and dissemination of theoretical and practical knowledge of the science and art of illumination." Since that time the New Orleans Chapter has been organized and it is hoped the Miami Lighting Club will develop into an IES Chapter in the near future.

Practical evidence of recognition of the Southeast in the lighting field will be the Illuminating Engineering Society to be held in Atlanta in September. This is the first convention of the Society to be held in this section of the country and it is believed it will do much to further interest in IES and the lighting industry in the Southeast.

Since its organization, the Georgia Chapter has held regular meetings with outstanding men of the industry as speakers. Recently a Lighting Conference, which devot-

*(Continued on page 52)*

**Stage full of lighting equipment which Georgia lighting men exhibited to nearly 7000 people.**

MOTOR Service

# Connecting Diagrams for Lap Wound A-c Motors

By A. C. Roe

Railway Motor Engineer
Westinghouse Electric & Mfg. Co.

THIS article includes the twelve-pole, three-phase, three-lead, three-parallel star and delta connecting diagrams, and also a continuation of the discussion of the effect of voltage changes on the operating characteristics of lap-wound induction motors.

Figure 61 shows the twelve-pole, three-phase, standard three lead, three-parallel star connecting diagram, where the star ring has nine connections attached to it, and the three line leads each have three connections attached.

It is a simple matter to convert this connection to a three parallel delta. First, cut open all star jumpers and remove the star ring; then connect the tops of groups 10-22-34 to the C line leads; next connect the tops of groups 12-24-36 to the B line lead; then connect the tops of groups 8-20-32 to the A line lead.

Figure 62 shows the twelve-pole, three-phase, standard three lead, three-parallel delta connecting diagram. The three line lead rings each have six connections attached.

This delta connection can be changed to a three-parallel star by simply cutting open the connections from the tops of groups 8-10-12, 20-22-24, and 32-34-36 and connecting them to a star ring as this automatically cuts open the delta connections at the line leads.

### Effect of Undervoltage

When changing the connections on lap wound induction motors in an effort to use them on different line voltages, there are some cases where the resultant connection has the effect of operating the motor on under voltage. Table I of a preceding article (see May 1941 issue, page 39) indicated three different conditions which will be discussed below. It should be remembered that the percentages given in Table I and this discussion are general and the figures will change with different motors and designs. (For reference purposes that part of Table I dealing with under voltage effects is reproduced on this page.)

*Power factor* at full load is increased slightly with a 5 or 9 per cent voltage reduction, and with a 27 per cent reduction the power factor is increased only 2½ per cent. At half load, the power factor increases about five points at a 9 per cent reduction in voltage. Thus at less than full load, under voltage improves the power factor to a greater extent than it does at full load.

*Efficiency* at full load and 9 per cent under voltage is reduced about 2 per cent. At 27 per cent under voltage, efficiency at full load drops 7 per cent. This decrease in efficiency, together with the increase in full load current, indicates that an under voltage of high percentage should not be considered for motors that might have to carry an overload.

*Percent slip* is increased about 21 per cent at a 9 per cent under voltage. At 27 per cent under voltage it is increased to almost 90 per cent. It should be remembered that the per cent slip in the original case is small so that a 90 per cent change in per cent slip does not mean almost complete reduction in speed, but under voltage will reduce the speed in greater proportion than

**Table I—Under Voltage Effect on Motor Performance**

| MOTOR CHARACTERISTIC* | PER CENT UNDER VOLTAGE | | |
|---|---|---|---|
| | 5½% | 9% | 27% |
| Power Factor, full load | + ⅛ | + ¾ | + 2½ |
| Efficiency, full load | — 1 | — 2 | — 7 |
| Slip, full load | +12 | +21 | +90 |
| Rpm, full load | — ¾ | — 1½ | — 3 |
| Starting Torque | —11 | —19 | —50 |
| Maximum Torque | —11 | —19 | —50 |
| Total Losses | + 4½ | +14 | +73 |
| Stator Copper Losses | +11 | +22 | +117 |
| Rotor Copper Losses | +12 | +22 | +97 |
| Iron or Core Losses | —11 | —15 | —45 |
| Magnetizing Losses | — 8 | —17 | —50 |
| Starting Current | — 5½ | — 9 | —20 |
| Full Load Current | + 5 | +11 | +24 |
| Temp. Rise, full load | + 3°C. | + 6°C. | +18°C. |

*Figures in columns indicate per cent increase or decrease in motor operating characteristic at left of table. Table applies to lap-wound a-c motors.

over voltage will increase it.

*Revolutions-per-minute* at full load is reduced from ¾ to 3 per cent at under voltages ranging from 5 to 27 per cent.

*Starting torque* on under voltage is reduced in direct proportion to the square of the reduction in voltage, or at 9 per cent reduction in voltage, the starting torque is reduced 19 per cent; at 27 per cent under voltage, the torque is reduced 50 per cent. This under voltage has quite a pronounced affect on reducing the load that a motor can start, and under voltage conditions should be avoided on elevator motors, or wherever high starting torques are required.

The next article will include the twelve-pole, three-phase, nine-lead, three or six parallel star and delta connecting diagrams, and will continue the discussion on the effect of under voltage on lap-wound induction motors.

## New Electrical Books

### Troubles of Electrical Equipment

By H. E. Stafford. Published by McGraw-Hill Book Company, 330 West 42nd Street, New York City, N. Y. 373 pages, illustrated. Price, $3.00.

This is the second edition of a book designed for the practical man concerned with the efficient operation and maintenance of electrical equipment. The book covers the symptoms, causes and remedies of troubles of both a-c and d-c appartus usually found in the average industrial plant. The book contains hundreds of illustrations and these should be a great help to the practical electrician.

In this second edition, the chapter on industrial plant lubrication has been completely revised and a comprehensive new chapter on the determination and location of cable faults has been added.

### The Measurement of Alternating-Current Energy

By Donald T. Canfield, Associate Professor of Electrical Engineering, Purdue University. Published by McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N. Y. 210 pages. Illustrated. Price, $2.00.

Professor Donald T. Canfield, an authority on electrical metering practice, is the author of "Vector Representation for Electrical Metermen," published in 1931. This book, which presented in elementary, non-mathematical language, the theory of the vector and its manipulation in the representation of alternating voltages and currents for metermen, proved tremendously popular with metermen. Professor Canfield's newest book, "The Measurement of Alternating-Current Energy," is a companion volume of his first book on vectors.

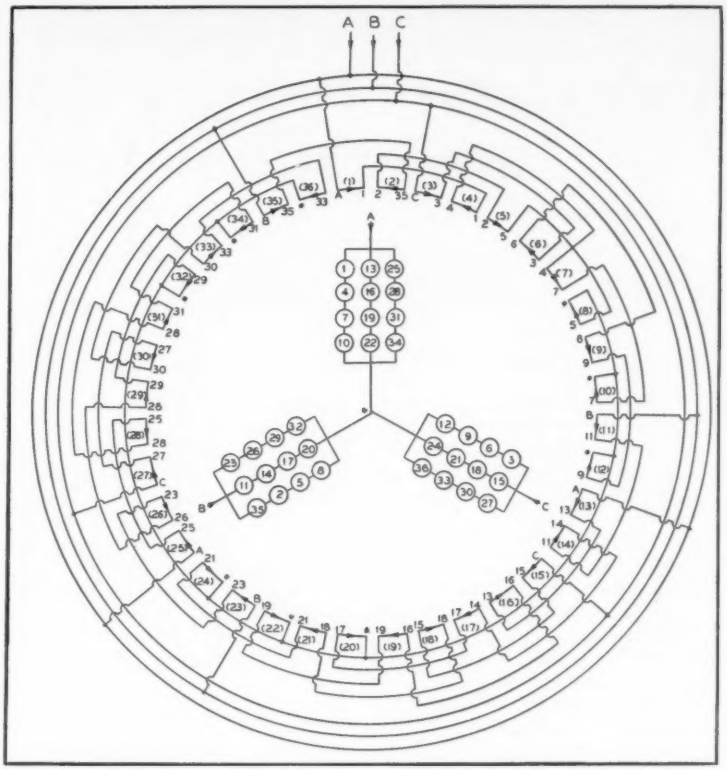



**Fig. 61. Three parallel star connection for 12-pole, three-phase, lap-wound induction motor with three leads.**

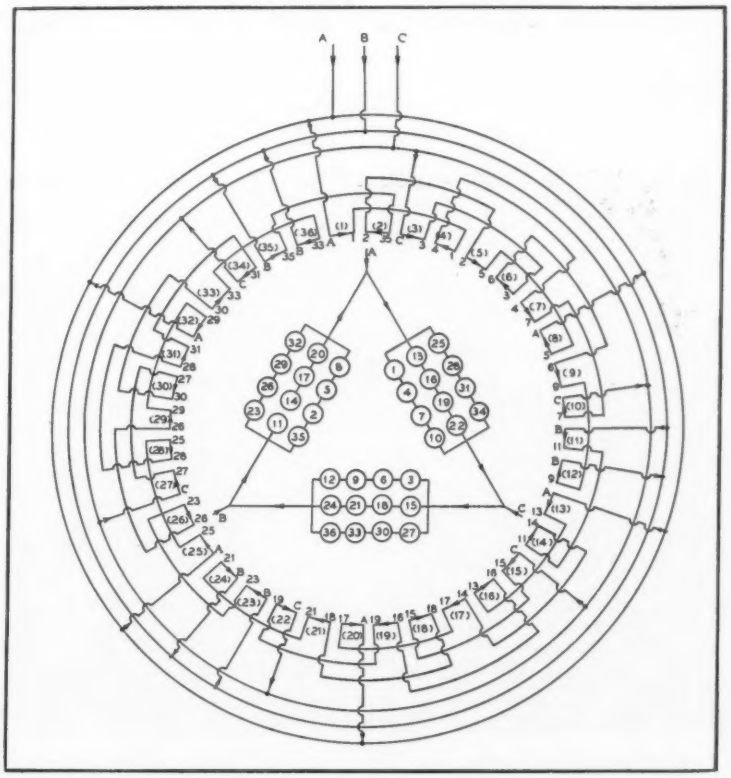



**Fig. 62. Three parallel delta connection for 12-pole, three-phase, lap-wound induction motor with three leads.**

# Automatic Outage Indicator Developed for Rural Lines

By S. R. Winters

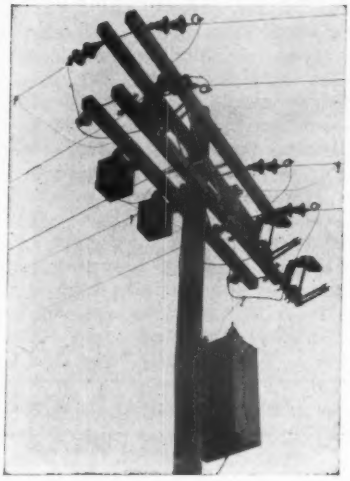
AN AUTOMATIC recording "trouble-locator," developed by two young Rural Electrification Administration engineers, D. E. Basler and J. F. Atkinson, may eliminate almost entirely the heavy losses in rural sections caused by disabling storms, when electric chick brooders, incubators, milk coolers or other electrical equipment may be out of operation for hours.

Maintenance crews frequently have been forced to spend hours, or perhaps days, in an effort to find the exact location of trouble in damaged power lines. In the meantime, electrical service is paralyzed. Inasmuch as rural telephone lines are commonly the first casualty in storms which disable power lines—and many farms do not have telephones—maintenance crews often do not learn of outages for several hours; then they must patrol scores of miles in an effort to find the trouble. The new equipment will save this patrol expense, obviate much of the revenue loss, and will make service more dependable for farm operations in which long outages can be disastrous.

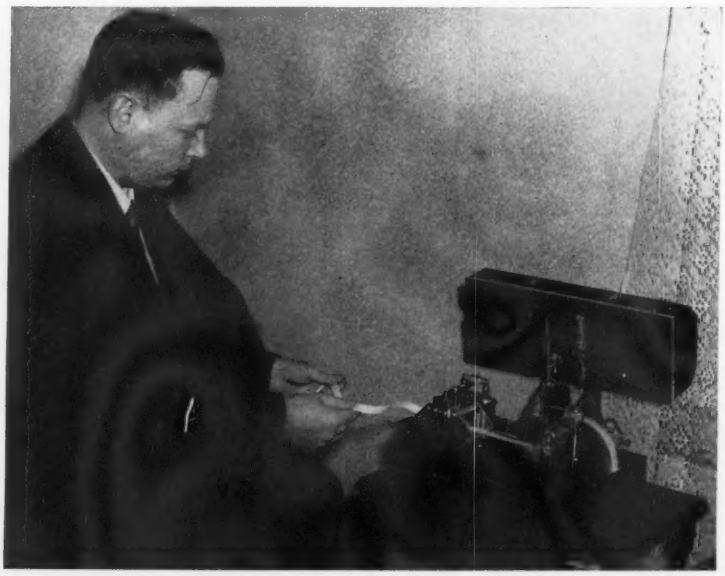
Whenever any part of a rural power system equipped with this apparatus is put out of service, through any cause, the time of outage and the precise section on which it occurred automatically is printed on receiver tape located at a local headquarters. When the trouble is cleared up, the fact and time of service restoration also is recorded on the tape.

At Bowling Green, Virginia, recently, a group of REA officials and representatives of the electrical manufacturing industry including M. M. Samuels, chief of the REA Technical Standards Division, and R. S. Brunhouse, manager of the Utility Division of the Stewart-Warner Corporation, watched the revolutionary new device pass its final tests with flying colors and go into full service.

Now that the installation tests are over for the automatic recording outage locator, it will go into commercial production and become available soon to rural power systems at low cost.



**Carrier current outage locator transmitter 3-phase installation on pole at 3-shot sectionalization point. This installation automatically records outage, transmitting to receiving set at some central point, code record of section on which outage occurs; punch recorder and time clock mechanism connected with receiver records location and time of outage on ticker tape. When patrolling lines, lineman can pick up report of outage through code sound as long as he remains within 1,000 feet of lines, and goes directly to point of trouble even though he may not have heard from central office where ticker tape records outage.**



**John F. Atkinson, assistant research engineer, Technical Standards Division, REA, one of the inventors of the carrier current outage locator reads tape for record of outage. The punch recorder and time stamp is connected by wire to the receiver which is attached to a pole outside.**

In addition to the automatic recording features, the research by which this equipment was developed has an unexpected by-product which shows promise of becoming even more valuable than the outage reporting apparatus. The same current which operates the outage senders permits one-way communication between the headquarters and the maintenance crews in the field, and two-way communication appears entirely probable. Such a result is possible by use of the power lines as telephone circuits, with radio broad-

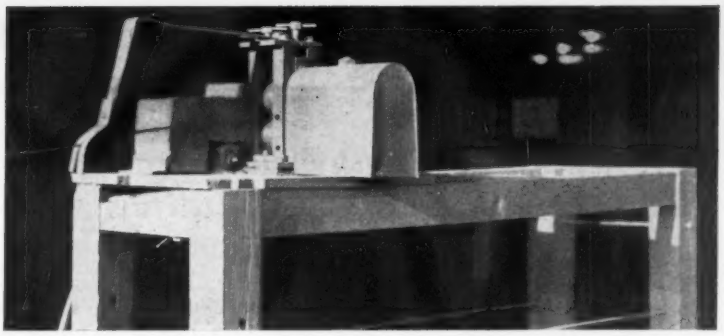
casting effects on a portable receiver within a few rods of the lines.

Described in technical terms, the equipment consists of a sender for each section, and a recording instrument centrally located. Both are operated on high-frequency electric current, the so-called "carrier" current. Normally, the sender does not operate. When any section of the power line goes out of service, the sender starts operating, and this actuates the recorder mechanism. Each recorder will accommodate a large number of senders, and duplicate recorders may be located at two or more places.

The problems which are solved by the new "trouble-locator" are by no means new ones. Engineers have worked on it for many years but have found difficulty in developing equipment which could be produced and installed at low cost. The installed price of the REA equipment is about $2,500 for a power system requiring 20 section senders. The whole system is based on the same principles as those installed on high tension networks, the cost of which runs into thousands of dollars for a similar number of sections.

The automatic recording outage locator is the latest in a long series of inventions and new procedures in power-line engineering and maintenance which has developed through collaboration between the REA research staff and private engineers. These include low-cost cyclometer-type meters, new limited use service entrance equipment, a one-can milk cooler, a low-cost ground testing meter, a new radio interference locator, telephone coordination procedures, a motor-toter for large farm electric motors, a new ground fitting, a unit combining the meter and the circuit breaker of an individual

(*Continued on page 48*)



**The weather-proof wire reclaimer is shown here in operation. The wire is passing through the pressure rollers which crush the insulation. The particles of insulation are removed from the wire as it passes through the groove in the extension arm.**

## Substantial Savings With Wire Reclaimer

A machine for reclaiming scrap weatherproof copper wire, by stripping off the insulation and preparing it for use as bare conductor, has been developed by Eugene K. Tedstrom, division storekeeper, Arkansas Power and Light Co., Pine Bluff. He got the idea for such a machine while watching a service man prepare a piece of covered copper wire for splicing by squeezing the end between the handles of his pliers.

During 1940, nearly $1,000 worth of weatherproof wire, heretofore burned to remove the insulation and then sold for junk, was salvaged through use of the machine, which has a capacity of approximately 1,200 pounds of number 6 wire per day.

The stripping machine was constructed from miscellaneous scrapped materials and is powered by a one-horsepower motor. The two three-inch rollers, which press the insulation from the wire, revolve at 90 rpm and are adjustable to practically any size wire. As the wire leaves the rollers, it passes through a groove in an extension arm, as shown in the photograph, which removes all of the insulation. Including labor and materials, the construction of the machine involved a cost of slightly more than $150.

Since the perfection of the machine, repair crews removing weather-proof wire have been asked to eliminate cutting it as much as possible in order that maximum lengths can be used in the stripping process, Mr. Tedstrom estimates that between 15,000 and 20,000 pounds of scrap copper wire returned to the storeroom annually can be salvaged at a saving of from $1,100 to $1,500. After it is stripped at the storeroom, the wire is spliced and rolled in coils. The cost of this splicing and reeling is included in the costs of stripping, so that the saving estimated include these costs.

**Steve Jucius, Stewart-Warner engineer, using one way carrier current transmitter. Equipment is carried in truck or in trunk of passenger car and can be tapped to power line at any point.**

# NEWS of the INDUSTRY

## *Seriousness of Southeastern Power Shortage Recognized by Utilities*

THE extraordinary power demands of the national defense program superimposed on the normal requirements of southern power companies has brought about a critical situation rendered even more critical by unusual drought in the Southeastern states, considered the worst in thirty years.

Many companies in the Southeast depending upon hydro-power are considering or have already initiated a rationing program calling for voluntary reduction in electrical power consumption by industries not manufacturing defense materials.

Commonwealth and Southern utilities in the southeast began such a program on June 16th, calling for a one-third voluntary reduction in power consumption.

Water levels in Georgia Power Company's hydro-electric lakes, in the latter part of June, was sufficient to produce only 35,800,000 kwh in comparison with the 136,000,000 kwh that could be produced with normal water levels.

Alabama Power Company reported water in storage sufficient for only "four or five weeks" of hydro-electric production at current rates.

The South Carolina Power Company will ask voluntary reduction in order to divert power to Georgia Power Company. Voluntary reductions will also be asked of customers by the Gulf Power Company and Mississippi Power Company.

* * *

Electrical appliance dealers and contractors in the Tennessee Valley Authority area served by 106 municipal and cooperative systems also are affected by power conservation proposals made by TVA. TVA has asked for power conservation on a voluntary basis and is watching the results.

Although TVA has decided to make no public recommendations, it has passed on to power boards and cooperative managers suggestions for power conservation:

1. Withdraw financial assistance given toward the installation of new electric ranges and water heaters which are to be substituted for non-electric appliances.

2. Discontinue campaigns featuring electric ranges, water heaters, or other appliances which consume substantial quantities of electricity.

3. Assist customers in resetting water heater thermostats at approximately 135-145 degrees by making available services of meter readers, service men, or others.

4. Home economists employed by contractors should immediately begin efforts to educate customers having electric ranges in methods of reducing the consumption of electricity in cooking.

5. Give widest possible circulation to advertising and publicity materials to be provided by the Authority in order that customers may be fully familiar with all methods by which the use of electrical energy may be reduced with a minimum effect on normal living.

6. Discuss the electrical conservation program with each industrial customer and assist the customer in devising ways by which his consumption of electricity can be reduced.

7. Limit the extension of new service to customers who can be served from existing facilities. Service to new areas involving construction of new primary lines should be deferred until after the emergency.

8. Arrange meetings immediately with local merchants in order to explain the emergency and enlist their cooperation in conservation of power.

Among recommendations for commercial customers were: discontinue the lighting of show windows on all nights except Saturday; eliminate daytime use of lights in show windows; discontinue illumination of all outside and inside signs and billboards; limit daytime use of lights to dark areas only; turn off all lights not actually needed; reduce elevator service one-half whenever possible; eliminate decorative lighting.

Electric power to partially ease the load on TVA was supplied by the New Orleans Public Service, Inc., about June 1 when it began supplying the Authority with approximately 500,000 kwh per day.

The power was transmitted to lines of the Louisiana Power and Light Company and thence to the Mississippi Power and Light Company, which was thus enabled to supply the TVA with an equivalent amount of power for defense work and to meet the shortage caused by drouth conditions in the Southeast.

Simultaneously with announcement that it was supplying the TVA power, the New Orleans utility announced plans for installation of a 42,000 kva turbine at its power plant at a cost of $4,000,000.

* * *

To those who find it difficult to understand the power shortage in the Southeast, perhaps the best expression is to be found in recent statements of J. A. Krug, manager of power, TVA, who said, "During a critical dry season such as at present, approximately 1,000,000,000 kwh of electric energy must be obtained from the primary supply of the region which would normally be devoted to other purposes, and delivered to maintain continuous aluminum production."

* * *

The outlook for the future in so far as power supply is concerned is indicated to some extent in the latest of a series of reports prepared by the Federal Power Commission on "Electric Power Requirements and Supply." Significant conclusions drawn from data in the new report are summarized as follows:

"(1) Many areas of the country are now actually facing power shortages which can be met only by cutting into essential reserves, by bringing in power to the extent permitted by transmission interconnections from other areas, or by curtailing actual or potential loads.

"(2) Even on the basis of the unrevised December estimates of 1942 demand, it now appears that the 5,751,615 kilowatts of new capacity scheduled for operation in 1941 and 1942 will fall some 570,-

000 kilowatts short of meeting the expected demands in certain areas. This deficiency is likely to rise to 1,400,000 kilowatts as a result of expansion of the defense program since those estimates were prepared.

"(3) Power demands are continuing to grow more rapidly than the utility systems anticipated in December. Thus 74 of a total of 158 reporting systems underestimated their March, 1941 power demands by 581,000 kilowatts, and 117 systems underestimated their energy requirements for the same month by 556,000,000 kilowatt-hours.

"(4) These growing demands have led to upward revisions totaling 749,000 kilowatts in 1941 peak demand estimates of 47 systems, while 70 systems have increased their estimates of peak month energy requirements by 518,000,000 kilowatt hours. About 50 per cent of the upward revisions in forecasts were made by four reporting systems, namely the Pennsylvania-New Jersey group of interconnected systems serving eastern Pennsylvania and New Jersey; the Commonwealth Edison system serving the Chicago area; the Tennessee Valley Authority; and the Bonneville Administration serving portions of Oregon and Washington.

"(5) The March reports show increases since December in the assured capacities reported available for service in the period from March, 1941, through December, 1942. These increases, however, consist in large measure of higher capacity values assigned to existing generating facilities or decreases in the necessary operating reserves.

"(6) During the first three months of 1941 the reporting utilities ordered 1,481,000 kilowatts of generating capacity. The new generating capacity scheduled for operation during the period April 1, 1941, to December 31, 1942, totals 5,751,615 kilowatts; that scheduled for operation in 1943 totals 1,146,000 kilowatts, while new capacity now scheduled for operation in 1944 and 1945 amounts to only 165,000 and 300,000 kilowatts respectively.

"These conclusions suggest strongly that unless orders are placed immediately for large amounts of additional capacity for 1943, serious shortages will develop in that year, and in subsequent years if the emergency continues. The importance of placing orders immediately is accentuated by the fact that, under present conditions, from two to three years are required to complete the manufacture and installation of generating facilities, with every indication that even longer periods may be required as the defense program expands."

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### South Leading in Retail Trade Gains

Large regional trade gains were more widespread during May and early June as general retail spending touched the highest levels since 1929, according to Dun & Bradstreet, Inc. The Southwest joined the Middle West, Eastern and New England sections in reporting substantial trade gains over last year, while the South continued outstandingly strong and trade in many centers held at the best level in history.

Consumer buying hit an all-time peak for the month in ten regions, six of which were Southern, according to the seasonally adjusted trade barometers for April just available for 29 regions. The Southern regions included Maryland and Virginia, the Carolinas, Atlanta and Birmingham, Florida, Memphis, and New Orleans; the other four were Indianapolis and Louisville, Milwaukee, Texas, and Portland and Seattle.

## What's Being Said and Done in Washington

*By Wilfrid Redmond*

THE NEXT move by the Office of Emergency Management to obtain greater use of the facilities of the non-defense industries for armament production will be to reduce the number of lines of civilian goods now being produced by manufacturers.

Details of the program were announced recently by Donald Nelson, director of the division of purchases of OPM. The plan will be in operation by mid-summer and will be known as the "simplification program."

It will call for voluntary reduction of lines by all industries which compete with the defense program. In the case of refrigerators, washing machines, and other appliances it will mean simplification of the number of lines now on the market.

Representatives of retail distribution will have a voice in determining which models will be selected for concentrated production. The plan is to have committees representing all branches of each industry work out the simplification of lines in cooperation with OPM.

### Wage and Hour Narrows Retail Definition

The status of many electric appliance dealers under the Wage and Hour law is changed by a new definition of retailing effective July 1. Henceforth, any dealer whose wholesale business amounts to more than 25 per cent of his total volume will not be exempt from the wage and hour provisions. The definition, according to a statement of the Wage and Hour Division, is of particular importance in determining the status of dealers in electrical equipment where wholesale and retail selling are so closely allied. The previous definition allowed a dealer to make 50 per cent of his sales at wholesale and still retain his retail status. Sales of appliances for apartment house installation, where quantity and discounts are a factor, will be defined as wholesale sales.

### Replacement Supplies Assured

An uninterrupted flow of repair and replacement parts in the field of electrical equipment is assured wherever priorities have been established in the critical metals, it is stated by the Priorities Division of OPM.

At the same time, priorities may be established for defense housing construction materials, curtailing private home construction. C. F. Palmer, defense housing coordinator, recently told the National Housing Inventory convention in Washington that:

"First things will soon come first in every field. Certainly it is better to have fifteen $3,000 homes for defense workers where and when needed than one $45,000 home.

*(Continued on page 50)*

## Rural Electrification Program Six Years Old

The start of the seventh year of the Federal rural electrification program finds approximately 2 million American farm families enjoying central station electric service—nearly three times as many as had it in 1935—tre Department of Agriculture reports. Since establishment of the Rural Electrification Administration on May 11, 1935, REA-financed power lines alone have taken electricity to more than a half a million farms. During the same period, private utilities have connected about as many additional farms.

During its six years of operation, the REA has allotted $367,215,121 to 834 borrowers in 45 States and Alaska. These funds provide for construction of 354,090 miles of lines to serve 1,168,272 farm families and other rural consumers. By March 31, 1941, 714 of these systems were actually operating 286,142 miles of line with 726,065 connected consumers.

The Department estimates that about 80 percent of the consumers connected to REA lines are farm families. The rest are divided among non-farm rural residences; stores and filling stations; community institutions, such as churches and schools; governmental establishments, such as airway beacons, Army camps, Navy and Coast Guard stations and CCC camps; and decentralized rural industries.

The Department reported continued favorable trends in the financial condition of the REA borrowers. More than 90 percent of them are farmers' cooperatives newly formed to take advantage of the REA program. Few of them have completed the five years of operation generally considered necessary for a new electric enterprise to get out of the red. Yet to March 31, the borrowers made payments of interest and principal totaling $11,565,691, although the total amount due and payable at that date was only $9,097,587. The $207,490 overdue on March 31 was far outbalanced by advance payments totaling $2,675,594.

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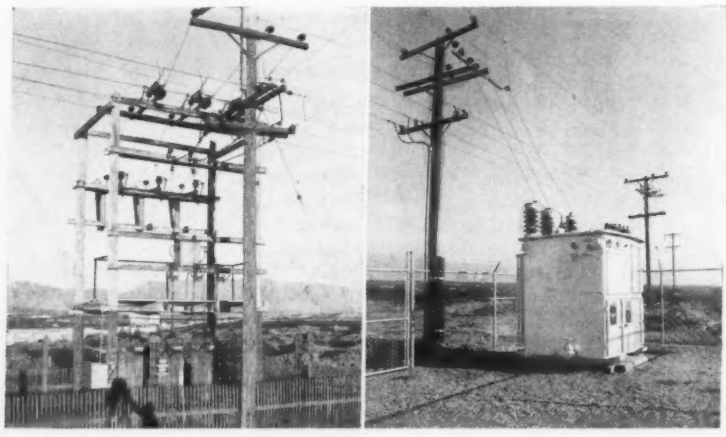
## New Steam Plant Scheduled for Houston

The Houston Lighting & Power Company, Houston, Texas, is preparing to spend several million dollars enlarging its plant capacity to meet demands of the national defense program, according to announcement by S. R. Bertron, president and general manager of the company.

The expansion program will include construction of a new plant on the southwestern edge of the city to duplicate the present power production system. The land to be used as a site for the new plant already has been purchased.



**The demand for increased capacity resulted in the replacement of an entire substation by one transformer manufactured by the Westinghouse Electric and Manufacturing Company. Located in El Paso, Texas, the new installation is a part of the El Paso Electric Company system. The transformer capacity is 750 kva as compared to 300 kva supplied by the old substation consisting of three conventional single phase transformers. Primary and secondary voltages are 23,900 and 4,160 volts, three phase, 60 cycles. The new unit is fully enclosed and automatic. It is complete with built-in Inertaire equipment, air circuit breaker on the secondary, lightning arresters and automatic reclosing switches.**

## Fluorescent Futurama To Tour Country

Thousands of dealers, distributors, contractors and prospective customers in sixteen major cities throughout the country are to have an opportunity to see and inspect —during the next three months— the lighting industry's newest and most sensational exposition—the Fluorescent Futurama—when this timely traveling show begins a series of three-day appearances throughout the east and midwest.

The activity has been originated by the Fleur-O-Lier Manufacturers and the RLM Institute, two groups of leading fluorescent lighting fixture manufacturers who participated in a program calling for production of fixtures certified to rigid specifications for safe, satisfactory,high-quality performance. All fixtures shown in the Futurama are those which have been tested and certified as complying with such specifications by Electrical Testing Laboratories, of New York.

Each manufacturer participating in the Fluorescent Futurama will display a maximum of four fixtures — some industrial and some commercial. There will be special exhibits by manufacturers of the important certified ballast and starter equipment which form an integral part of every certified unit. Electrical Testing Laboratories will show how some of the important testing steps are conducted.

It is expected that each Futurama will draw interested spectators from more than fifty miles away. Admission will be by invitation and notices will be sent to thousands of dealers, distributors, contractors and interested customers.

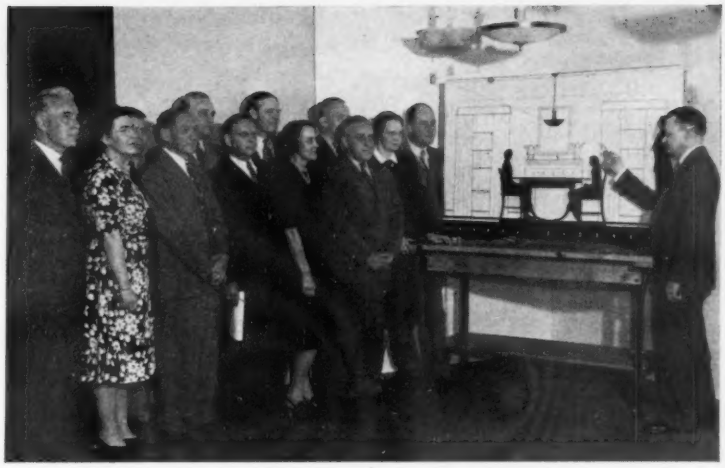
Several of the interesting features of the show include educational exhibits of fluorescent lighting with both certified Fleur-O-Lier and RLM units, as well as instruction in planning a fluorescent lighting installation.

Following the exposition's premiere in Cleveland, the Fluorescent Futuroma will head for the Middle West, while another complete exposition unit will open on the Atlantic Seaboard. Cities to be visited by the exposition are: Cincinnati, Chicago, Minneapolis, Kansas City, St. Louis, Milwaukee, Detroit, Pittsburgh, Buffalo, New York, Newark, Philadelphia, Baltimore, Charlotte and Atlanta.

## Residential Lighting Equipment Studied

Better illumination performance combined with freedom from objectionable brightness in residential lighting fixtures was the object of the joint session of the IES, Residence Lighting Committee and the ALEA Specifications Committee, held June 11, at the Electrical Testing Laboratories, New York City.

The meeting was called for the purpose of reviewing, clarifying and revising certain portions of the "Recommended Practice for the Illuminating Performance of Residential Ceiling Luminaires" of the Illuminating Engineering Society, which are embodied in the certification specifications of the American Lighting Equipment Association. The revisions, which will be announced later, are designed to insure better lighting performance while at the same time allowing ample latitude for decorative design.



**J. Carl Fisher (extreme right), chairman of the I.E.S. Residence Lighting Committee, with the aid of a "Brightness Zone Analyzer" developed by Mary E. Webber, home lighting specialist of General Electric's Nela Park Engineering Department, demonstrates the illumination distribution characteristics of one of the types of fixtures under discussion. Left to right, across from Mr. Fisher: William A. Kimbel, Mary E. Webber, C. D. Poey, J. H. Blitzer, D. A. Stroud, T. W. Rolph, E. W. Commery, Katherine T. Goodall, Carl Moser, M. Luckiesh, Myrtle Fahsbender, D. L. Ripley.**

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## "49-ER" Activity Goes Ahead in New Orleans

In order to impress lighting salesmen and their prospects with the necessity for more than 50 footcandles of illumination for numerous types of eye-work and to drive home the many advantages of such lighting in a dramatic way, Lamp Department of General Electric at Nela Park recently organized the 49-ers Club.

The activity behind this club draws many a parallel from the gold rush days, for example, "them what digs, gits." Directors of the 49-er activity, however, hasten to point out that whereas the original pioneer was primarily interested in taking out gold, the modern 49-er actually gives more gold than he takes. And by the term gold, the modern argonaut refers to the manifold benefits to be had by all concerned from a system of "49-er-better" maintained footcandles.

One of the most striking relighting jobs, resulting from the prospecting of lighting salesman John D. Haverkamp, of New Orleans Public Service, Inc., is that of the *Times-Picayune* in the Mardi Gras city. The "miracle" took place in the newspaper's make-up room. According to the 49-er application turned into Nela Park, the "before" lighting consisted of a system of filament lamps for general illumination. This was supplemented by local lighting. Footcandle levels varied from 20 to 40. Although the lighting was not free from glare or from "pools of light,"

**The "before" and "after" photos shown here of the make-up room of the Times-Picayune, of New Orleans, indicate accomplishment resulting from G-E's "49-er Club" activity. Although the make-up room had lighting better than the average newspaper room, as shown at left, the new installation provides ideal illumination of 70 footcandles from 48 100-watt fluorescent lamps. The newspaper reports that make-up work is speeded up and errors reduced.**

seeing conditions, according to GE engineers, were way above average for newspaper plants.

As the "after" picture shows, 48 new G-E Mazda 100-watt fluorescent lamps in 24 two-lamp Miller fixtures now provide 70 maintained footcandles. This wealth of cool light has materially speeded up make-up operations, reduced errors, and has greatly improved utilization of floor space.

And Mr. Haverkamp is definitely a member of the 49-ers Club.

## News from the Field On Adequate Wiring

An extensive direct mail program to prospects, cooperation with operative builders, and bonuses for electrical contractors turning in certified adequately wired jobs are outstanding features of the new certified adequate wiring program for electrical contractors organized by the Electrical Association of New Orleans for the six months period from May 1 to October 31 of this year.

Announcement of the details of this activity was made by J. P. Maguire, of the New Orleans A. W. Committee at the Electrical Association's contractor's meeting on May 5 at the Roosevelt Hotel. Mr. Maguire, who is sales promotion manager of New Orleans Public Service, Inc., reviewed the A. W. activities to date and indicated that, up to May 9, there were 66 jobs either certified or completed on which certificates would be issued.

In a recently issued plan book, the Association states that since last year's activity was so satisfactory, the new program was organized for electrical contractors. The bonus plan is a new feature of this year's program which will have the support of both New Orleans Public Service Inc., and the Louisiana Power & Light Company.

That wide-spread interest has been aroused in adequate wiring in the communities served by the Kentucky Utilities Company is evidenced by the fact that within recent weeks R. W. Wilson, manager of commercial sales, has addressed approximately fifty meetings in thirty-five towns. Although most of these were industry groups, including as many as 570 employees of the utility, Mr. Wilson's presentation has also been given before Kiwanis Club and other civic organizations.

## Carolina Power and Light Wins Hughes Range Award

The Carolina Power and Light Company won the national George A. Hughes Grand Award of a large silver trophy and $500 in cash in recognition, with the assistance of the electrical dealers in the territory it serves, of having made the most distinguished contribution to the market for the development of electric ranges in the entire United States during 1940, L. W. Sutton, president and general manager, announced today.

The grand prize, an award given annually by George A. Hughes of Chicago, inventor of the electric range, was presented June 3 at the annual convention of the Edison Electric Institute in Buffalo, N. Y.

Mr. Sutton, S. P. Vecker, vice-president, and H. G. Isley, general sales manager, were in Buffalo to receive the award, an honor coveted by all electric utility companies.

Mr. Hughes, who is known throughout the electrical industry as "the father of the electric range," which he first developed in 1910, made the presentation personally as a feature of the opening session of the convention attended by electric utility men from all parts of the nation. Mr. Hughes is chairman of the board of directors of the Hotpoint company, which this year produced its one-millionth electric range.

Of the approximately $7,295,548 worth of household electrical appliances sold in the Carolina Power and Light Company's territory in North and South Carolina last year, Mr. Sutton said electrical dealers sold $7,028,000 or approximately 97 per cent.

"On behalf of our company, myself, Mr. Vecker and Mr. Isley, I want to give full recognition to our associated electrical dealers and members of our sales force for the splendid job they did last year," said Mr. Sutton before leaving for Buffalo. "It was in 1935 that our dealer-company co-ordinated sales program was started and it has been mutually satisfactory to dealers and company alike.

Mr. Sutton said this coordinated dealer-company sales program and the numerous rate reductions have resulted in such widespread growth in the use of electric ranges in the company's territory that today almost one out of every three homes is using electric cookery.

Practically all apartment houses, he added, built last year in the area the company serves, together with two federal housing projects involving 462 complete kitchens, are equipped with electric kitchens.

The trophy, a massive silver column surmounted by an eagle, will be displayed throughout the year in the power company's offices in North and South Carolina.

**Seated left to right: Harry Restofski, sales promotion manager, West Penn Power Company, Pittsburgh, Pennsylvania, who received third prize in the 1941 George Hughes Award; R. B. McElroy, commercial sales manager, Washington Water Power Company, Spokane, Washington, whose company won second prize; George A. Hughes, chairman of the board, the Hotpoint Company, Chicago, who personally presented the awards at the EEI Convention in Buffalo, New York, on June 3; Hugh G. Isley, general sales manager, Carolina Power and Light Company, Raleigh, North Carolina, who received first prize in the 1941 George Hughes Award competition. Standing, left, Kinsey M. Robinson, president, Washington Water Power Company; right, S. P. Vecker, vice-president, Carolina Power and Light Company.**

**Winners in The Modern Kitchen Bureau National Water Heater Contest, for the best water heater performance by an operating utility, are shown with their awards. Left to right: Harry E. Simpson, vice president, Florida Power and Light Co., Miami, second prize; Jack Poteat, chairman, Electric Water Heater Section, National Electrical Manufacturers Association; Kinsey Robinson, president, Washington Water Power Company, Spokane, first prize; F. A. Coffin, vice president, Wisconsin Electric Power Company, Milwaukee, third prize.**

## Winners Announced in MKB Water Heater Contest

The Washington Water Power Company, Spokane, Wash., first prize; Florida Power and Light Co., Miami, Florida, second prize; Wisconsin Electric Power Company, Milwaukee, Wis., third prize, are the winners of the National Water Heater Contest sponsored each year by The Modern Kitchen Bureau. These companies, in the opinion of the judges, made the best all-around electric water heater performances by operating utilities in 1940. Company representatives accepted the awards in Buffalo, on June 3rd, at the sessions of the annual convention of the Edison Electric Institute.

The Washington Water Power Company, whose prize consists of a silver trophy and $500 in cash, conceived an unusually thorough plan of operation for 1940, and pursued it with vigor. The excellence of the execution of its program is attested to by the fact that the company sold 46.2 water heaters per thousand residential customers, a total of 3,257 water heaters during the year, and increased its percentage of sales over 1939 by 32.9 per cent.

The Florida Power and Light Company, winner of $300, met the demands of an unstable, transient and highly competitive market with a comprehensive campaign that sold 28 water heaters per thousand residential customers, a total of 3,252, increasing sales 28.1 per cent over 1939.

The Wisconsin Electric Power Company, winner of $200, planned an effective dealer development and customer educational activity, using Modern Kitchen Bureau programs, and increased sales volume by 27 per cent over that of 1939.

Companies receiving honorable mention in the MKB National Water Heater Contest are Portland General Electric Company, Portland, Ore., Idaho Power Co., Boise, Idaho; and Knoxville Electric Power & Water Board, Knoxville, Tennessee.

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## Grove and Bolin Head MKB Plan Committee

W. A. "Art" Grove, advertising manager, Edison General Electric Appliance Company, Chicago, Illinois, has been elected chairman of the Plan Committee of The Modern Kitchen Bureau for 1941 and 1942. Roger Bolin, manager, Merchandise Advertising and Sales Promotion, Westinghouse Electric and Manufacturing Company, Mansfield, Ohio, will be the vice-chairman of this committee for the same period.

**W. A. Grove** **Roger Bolin**

In their new positions, Mr. Grove and Mr. Bolin will guide the promotional activities of the Bureau, supervising the preparation of all Bureau campaigns. Both these men have been closely associated with The Modern Kitchen Bureau throughout its five-year history, and their experience and knowledge of electrical appliance merchandising is expected to be of great value in Bureau activities during the next two years.

Mr. Grove and Mr. Bolin were elected to their new posts at a meeting of the Executive Committee of the Bureau, on June 2nd, during the sessions of the Edison Electric Institute's annual convention at Buffalo, N. Y.

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## Washer-Ironer Sales Hit All-Time High

Purchasing by the sharply increased numbers of employees in national defense work and a simultaneous marked advance in the replacing of obsolete home laundering equipment by present users are reported by distributors and factory branches throughout the country and are resulting in record-breaking deliveries to the retail trade, according to announcement by Joseph R. Bohnen, of Chicago, executive secretary-treasurer of the American Washer and Ironer Manufacturers' Association.

Coupled with production of special orders under the national defense program, the industry is operating on high schedules which are declared to be closer to capacity than at any time in its history, despite increased labor and material costs.

Washers shipped from the industry's factories in April, latest figures available, totalled 213,611, or an increase of 58 per cent over 135,179 shipped in April, 1940, Secretary Bohnen asserted. The previous all-time month's high was reached in March, 1937, when shipments were 189,393 units. The total for the first four months of this year is 693.893, or 27 per cent above 546,455 in the same period a year ago. This also breaks an all-time high which had stood since the opening months of 1937, when shipments aggregated 646,-009.

Portable ironers shipped in April aggregated 11,427, or 314 per cent above the April, 1940, total of 2,759. Cabinet models were

10,362, compared to 9,225, an increase of 12 per cent. Portables for the four months totalled 41,135, compared to 11,195 in the same period of 1940, or an increase of 267 per cent. Cabinet types aggregated 39,298, or 17.7 per cent ahead of 33,393 a year ago.

April figures also are well ahead of March, washers being up 11.5 per cent and the ironer total, 27 per cent.

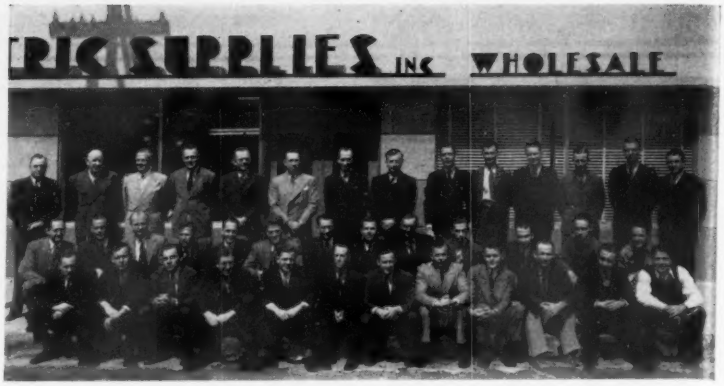
## North Carolina Contractors And Inspectors to Meet

The summer meeting of the North Carolina Chapter of the International Association of Electrical Inspectors will be held July 15, 16 and 17, at State College in Raleigh. This meeting is being sponsored jointly by the North Carolina Chapter, the North Carolina Board of Examiners of Electrical Contractors, and the North Carolina Association of Electrical Contractors. It will be conducted under the direction of the College Extension Division and the Department of Electrical Engineering with the objective of promoting better understanding of the National Electrical Code as it affects inspectors and contractors and stimulating study and discussion of problems which are encountered in this field.

A registration fee of only $1 will be charged those attending the meeting. Another added convenience will be the college cafeteria where excellent meals will be available at a very reasonable cost to those registered for the meeting.

A wide range of topics of current interest have been selected for the three-day program. Among those addressing the first day's meetings will be Victor H. Tousley, secretary-treasurer, IAEI, Chicago; H. N. Pye, chief engineer, South-Eastern Underwriters Association, Atlanta; George A. Sawin, National Electrical Manufacturers Association, New York City; W. J. Canada, special consulting engineer, New York City; and O. A. Fredrickson, commercial engineer, National Electric Products Corp.

At following sessions talks will be presented by L. M. Keever, of the electrical engineering department of the college; S. P. Vecker, vice-president, Carolina Power & Light Co.; E. G. Romeiser, field engineer, Porcelain Products; O. K. Coleman, American Gas & Electric Corp., New York City; Lee F. Adams, General Electric Co., Schenectady; Howard Weber, U. S. Rubber Products, New York City; C. S. Whitaker, city electrician, Durham; W. E. Armstrong, Underwriters Laboratories, Inc., New York City; and Roy A. Palmer, Duke Power Co., Charlotte.




**All sales and service personnel of the Raybro Electric Supplies, Inc., wholesalers, met recently at the Hillsboro Hotel, in Tampa, for a general sales meeting. Conducted by M. O. Hollis, assistant general manager, the two days' sales session presented new lines that the company will handle and reviewed the old lines of merchandise, wiring supplies and lighting fixtures. Included on the program were a number of manufacturers' representatives. Among these were Walter Gearhart, of the Duncan Meter Company; Hervey Brown, of Rex Airate Fan Company and Cleveland Water Heater Co.; C. R. Strother, Emerson Electric Mfg. Co.; R. B. Cooper, A.B.C. Washer Co.; Henry Moe and Don Six, Moe Bros. Mfg. Co.; Fred Dale, Landers, Frary and Clark; and D. Hayes Murphy, Wiremold Co.**

## Meeting Place and Date Set for Wholesalers

The semi-annual convention of the National Electrical Wholesalers Association will be held at the Hotel Statler, Detroit, Mich., on October 14 to 17, 1941, according to announcement by E. Donald Tolles, managing director of the association.

## Southeastern District AIEE To Meet in New Orleans

The St. Charles Hotel, New Orleans, La., has been selected as headquarters for the Southeastern District meeting of the American Institute of Electrical Engineers to be held December 3-5, 1941.

An interesting technical program, together with visits to many of the varied industrial plants of New Orleans, is being arranged, according to announcement by Robert J. Kuhn, consulting engineer, of New Orleans, and publicity chairman for the Southeastern District meeting.

Among those who are assisting in the preparations for this meeting are James M. Todd, general chairman, Eugene Mabson, technical papers, Frank G. Frost, meetings and entertainment, and Louis T. Frantz, plant visitation. Mr. Mabson is chairman of the New Orleans Section and Frank Johnson is secretary.

## Southeastern Wholesaler Honored by NEWA

W. L. Perry, vice-president and treasurer of Perry-Mann Electric Co., Inc., Columbia, S. C., was elected to the executive committee of the National Electrical Wholesalers Association at its recent convention in Hot Springs, Va. Mr. Perry will represent the Southeastern District on the executive committee for a three-year period.

## Florida Advertising Executive Joins Service Organization

James M. Robertson, formerly advertising manager for the Florida Power Corporation, of St. Petersburg, has resigned that position to become assistant general manager of Public Utilities Reports, Inc., a national firm rendering special service information to electric power, gas, telephone and traction companies. He will make his headquarters in Washington, D. C., where the company maintains executive offices. Mr. Robertson has been a resident of St. Petersburg for more than 18 years and has been associated with Florida Pow-

er Company for the past 12 years.

Succeeding Mr. Robertson as advertising manager of Florida Power Corporation is B. G. Duncan, formerly of Orlando, where he served as advertising manager of the Florida Public Service Company.

### S. M. Sharp Named Chief Engineer for Southwestern

S. M. Sharp, for the past six years electrical superintendent for Southwestern Gas and Electric Company's Shreveport division, has been promoted to the position of chief engineer of the company, succeeding Andrew Patterson, deceased, according to an announcement made by A. Lieberman, president of the company.

Mr. Sharp came to Shreveport as division engineer in 1932 and was made electrical superintendent in 1935, which position he has held until the present time.

He was born and reared in Alma, Arkansas, receiving his education in the public schools there and the University of Arkansas from which he was graduated in 1923 with a degree in electrical engineering. He then spent one year in East Pittsburg, Pa., with Westinghouse Electric and Mfg. Co., following which he accepted a position with the East St. Louis Light and Power Company, in East St. Louis, Ill., and did engineering work in Illinois, Missouri and Minnesota. After three years in this work, he came to the Central and Southwest Utilities Company, in Dallas, an associate company of Southwestern Gas and Electric. He remained in this position doing design, engineering and construction work until 1932, when he was transferred to Shreveport.

### W. J. Rooke Elected President Of Publishers Association

William J. Rooke, president, W. R. C. Smith Publishing Company, Atlanta, publishers of ELECTRICAL SOUTH, was elected president, Associated Business Papers, Inc., at the annual meeting of the association last month at White Sulphur Springs, W. Va. He succeeds Roy V. Wright, vice-president and secretary, Simmons-Boardman Publishing Company, New York, who was made chairman of the board.

Mr. Rooke is the first Southern publisher to head the ABP in its twenty-five years' history. He has been associated with the Smith organization for twenty-seven years, with two years out for service in the first world war as a first lieutenant in the artillery. Mr. Rooke is recognized in the business publishing field for his advocacy of progressive methods in publishing.

### Bathe Appointed Superintendent Of Engineering for OG&E

C. E. Bathe, of the Transmission-Distribution Department, of Oklahoma Gas & Electric Company, was recently appointed by Frank J. Meyer, vice-president in charge of operations, to succeed the late Roscoe Schaeffer as superintendent of engineering. Mr. Bathe has been a member of OG&E for fourteen years. He came to the company from a position on the faculty of the Engineering School at the University of Oklahoma. After occupying several different positions in the electrical department of OG&E, he became electrical engineer for the Transmission-Distribution Department in 1936, in which capacity he continued until his recent appointment as superintendent of engineering.

### OG&E Changes Division Management Personnel

Henry E. Bowen, manager of the northern division of Oklahoma Gas & Electric Company, with headquarters at Enid, has been named to succeed Charles E. Fahrney, retired, as manager of the company's southern division with headquarters at Ardmore. Mr. Bowen began his career with OG&E in 1921 after graduating from the University of Alabama. Prior to his appointment as manager of the northern division, he served as chief electrician for the company at Sapulpa and as district manager at Durant.

Edward B. Smith will succeed Mr. Bowen as manager of the northern division. He first came to Oklahoma in 1918 as auditor of the Muskogee division of OG&E and, in 1923, he was appointed manager of the central division with headquarters at Sapulpa.

### New Commercial Manager for Central Power and Light

O. W. Jones, for many years supervisor of electric power sales of Central Power and Light Company, Corpus Christi, Texas, was recently named manager of the commercial and industrial power department of that company. Mr. Jones, a past president of the Petroleum Electric Power Association and well acquainted in industrial circles throughout Texas, has been engaged in industrial power work for the Central Power & Light Company during the past 14 years. Previous to that time, he was connected with the Texas Power and Light Company in the same capacity.

### Parrack Joins Virginia Public Service Company

V. R. Parrack, well known among utility engineers of the Southeast, recently became associated with the Virginia Public Service Company, at Charlottesville, Va., where he will occupy the position of distribution engineer. Mr. Parrack was formerly connected with the Carolina Power & Light Company, at Raleigh, as distribution design engineer.

### Changes Announced Recently In Engineering Personnel

Nels H. Erlandson, of Asheville, N. C., superintendent of the western division of the Carolina Power and Light Company, has just been transferred to Raleigh, N. C., as distribution engineer.

Mr. Erlandson succeeds V. R. Parrack, who has resigned to become connected with the Virginia Public Service Company, at Charlottesville, Va.

C. S. Walters, vice-president and general manager of the western division, announced that Erlandson's place at Asheville would be filled by Wallace S. Gardner.

## Experts Meet to Discuss Electrical Safety Problems

How continuous 100% loading of electrical circuits and 24-hour operation in the many plants working on national defense production has put an unprecedented strain on electrical equipment and has introduced new problems of heating and ratings of electrical equipment was one of the subjects discussed recently at a two day meeting of the Electrical Council held in Chicago, on June 12 and 13, at the main testing station of Underwriters' Labratories, Inc.

The 40 members and guests attending from all parts of the United States are in charge of the inspection of buildings and the enforcement of safety regulations to prevent fire, electric shock, and accident.

Standards and safety specifications for electrical equipment, as well as problems encountered in electric fences, the shock hazard, the use of fluorescent lighting, of electrical medical apparatus, electric wire, and the substitution of new materials caused by the commandeering of metals, etc., for national defense needs were included in the program.

The Electrical Council was organized by Underwriters' Laboratories in 1917. The members voluntarily contribute their services and act in an advisory capacity to the Laboratories, reviewing and commenting on reports of tests conducted by Underwriters' Laboratories on new and unusual electrical equipment in the light of their experience in the field with those and similar products.

## Virginia Inspectors Hold Seventh Annual Meeting

The Virginia Chapter, International Association of Electrical Inspectors, concluded its seventh annual meeting at the John Marshall Hotel, on May 29th and 30th. The registration lists included the names of eighty-five members from all sections of the state, as well as nationally prominent guest speakers. Among those who addressed the chapter were Victor H. Tousley, of Chicago, field engineer of the National Fire Protection Association and secretary of International Association of Electrical Inspectors; N. E. Cannady, electrical engineer and chief electrical inspector, state of North Carolina; L. M. Keever, professor of electrical engineering, North Carolina State College; O. K. Coleman and H. G. Knoderer, members of electrical committee, National Fire Protection Association, W. E. Armstrong, Underwriters Laboratories, New York; A. L. Abbott and G. A. Sawin, National Electrical Manufacturers Association, New York; E. O. Romeiser, Union City, Ind.; J. R. A. Hobson, Jr., director public utilities of City of Richmond.

Several speakers discussed inspection and code problems as related to production requirements for national defense. Time was mainly devoted to problems arising from the new 1940 Code. Appropriate resolutions were presented and passed on the death of Dr. Morton G. Lloyd, past president of the International Association.

A pleasant feature of the meeting was the presentation of a loving cup to A. H. Apperson, of Richmond, as a token of love and esteem from statewide associates and friends in the electrical industry, and the occasion was timed to coincide with the completion of his fortieth year as an electrical inspector. The presentation was made by Victor H. Tousley and J. L. Speights with brief sketches of his career.

The meeting was concluded with an election of the following officers: C. H. Dougherty, of Franklin, Va, chairman; A. B. Rorer, of Lynchburg, Va., vice-chairman; and G. M. Miller, of Richmond, Va., secretary and treasurer.

## IAEI Chapters Hold Joint Summer Meeting

A large attendance from both the Indiana and Kentucky Chapters of the International Association of Electrical Inspectors was present at the joint meeting held June 19th and 20th, at the McCurdy Hotel, Evansville, Ind.

Included on the first day's program was a talk on IAEI membership by E. H. Rueppel, chief deputy electrical inspector of the State Electric Inspection Bureau, Louisville; an address on the value of inspection, by Clem Smith, Indiana State Fire Marshal; and a talk on national defense by Henry Steeg, coordinator, Indiana State Defense Council.

A discussion of explosion-proof fittings and hazardous locations was also presented at this meeting.

The entire afternoon session was devoted to code problems and answers and to a discussion of the highlights of Kentucky Chapter's new materials and methods report, presented by Victor H. Tousley, electrical field engineer, NFPA, Chicago.

At the last session of the joint meeting, H. C. McDaniel, district engineer, Westinghouse Lamp Division, Pittsburgh, discussed "Fluorescent Lighting and Power Factor." "Small Motor Protection," was the subject of Harry Epstein, switchgear specialist, also with Westinghouse. A part of the last session was devoted to questions and answers on the 1941 listing of inspected appliances conducted by Norman H. Davis, Jr., service engineer, Underwriters' Laboratories, Inc., Chicago.

## Assistant Secretary Elected For Southern Section, IAEI

C. M. Jones, southeastern representative of Underwriters' Laboratories, Inc., with headquarters in Atlanta, has been appointed assistant secretary of the Southern Section, International Association of Electrical Inspectors.

The following members of the Southern Section have enrolled one or more new members for the association since the current membership campaign was initiated at the close of the annual meeting, September 14. Numbers at right indicate number of new members enrolled.

| Name: | No. Enrolled: |
|---|---|
| Bagwell. H. O.—Carrollton, Ga. | 1 |
| Bommer, A. J.—Dallas, Texas | 13 |
| Camus, Frank—Shreveport, La. | 8 |
| Campbell, R. D.—Asheville, N. C. | 1 |
| Clark, R. A.—Atlanta, Ga. | 1 |
| Coleman, E. C.—Monroe, La. | 1 |
| Dougherty, C. H.—Franklin, Va. | 1 |
| Eaton, W. M.—Norfolk, Va. | 2 |
| Eberling, J. H.—Houston, Texas | 2 |
| Edwards, Virge—Lyon, Mass. | 16 |
| Fisher, J. G.—Jackson, Miss. | 5 |
| Fletcher, G. R.—Alexandria, Va. | 2 |
| Goodson, Fred—Houston, Texas | 3 |
| Hancock, A. C.—Austin, Texas | 5 |
| Hendricks, R. B.—San Antonio | 8 |
| Jones, C. T.—Atlanta, Ga. | 1 |
| Keeley, K. K.—Shreveport, La. | 2 |
| Kenderdine, E. L.—Ft. Worth, Texas | 2 |
| Kersey, T. M.—Dallas, Texas | 2 |
| King, A. T.—Marietta, Ga. | 1 |
| Knox, E. C.—Miami, Fla. | 2 |
| LaTour, John—Daytona Beach, Fla. | 1 |
| Lyncker, P. O.—New Orleans, La. | 1 |
| McKinney, E. W.—New Orleans, La. | 2 |
| Mathieu, L. D.—Corpus Christi, Texas | 1 |
| Miller, G. M.—Richmond, Va. | 1 |
| Muller, Paul—New Orleans, La. | 2 |
| Murphy, J. M.—Roanoke, Va. | 1 |
| Muths, S. L.—Gulfport, Miss. | 1 |
| Peters, K. O.—St. Petersburg, Fla. | 2 |
| Sagendorf, F. P.—Fairfax, Va. | 1 |
| Segall, B. Z.—New Orleans, La. | 10 |
| Speights, J. L.—Richmond, Va. | 2 |
| Sprouse, J. B.—Clarksdale, Miss. | 7 |
| Stewart, W. B.—San Antonio, Texas | 1 |
| Turnage, L. A.—Hartsville, S. C. | 1 |
| Verrett, J. A.—Port Arthur, Texas | 2 |
| Weber, Chas.—Beaumont, Texas | 1 |
| Welman, George—New Orleans | 4 |
| Whitner, Jos.—Atlanta, Ga. | 3 |
| Yancey, W. H.—Charlotte, N. C. | 1 |
| Yelgerton, T.—Sylvarena, N. C. | 1 |
| Zimmer, Chas.—Houston, Texas | 4 |
| Applications Not Endorsed | 9 |
| Total | 134 |

# MANUFACTURERS' News

## Aluminum Company Completes New Plant

When Dr. Paul J. Raver, Bonneville administrator, threw an electric switch at the Vancouver, Washington, Works of Aluminum Company of America late Wednesday, he delivered the electric current necessary to place in operation the fifth unit of that Works.

By this action he also called attention to the completion of a large construction project in an unbelievably short time. Less than 15 months ago the site now occupied by the new works was a cow pasture. When the switch was thrown the capacity of the plant was increased to more than 150,000,000 pounds annually.

This figure is highly significant when one considers that the total production of all aluminum in the United States did not exceed 130,000,000 pounds per year in the last world war, and that the entire industry in the United States did not produce 150,000,000 pounds a year until 1924. Yet the Vancouver Works will account for only a fifth of the metal to be produced by Aluminum Company of America by midsummer of 1942.

Construction of the new plant began in March a year ago. At that time the plant was designed to deliver 30,000,000 pounds of aluminum a year. But the national need for aluminum became so great that the company decided to add other units as construction proceeded. Each unit was to have an annual capacity of 30,000,000 pounds.

The first unit went into operation last September, less than six months after the first concrete was poured. A second unit was completed in December. The third went into service in March, the fourth in April.

The construction of the Vancouver works is part of an expansion program which approximates $200,000,000. When the program is completed in midsummer, 1942, Aluminum Company of America will be able to more than double its peak peacetime production of 1939, when more than 327,000,000 pounds of aluminum were made.

## Nationwide Campaign to Promote Cabinet Sinks

Youngstown Pressed Steel Division of Mullins Manufacturing Corporation has just announced a nationwide campaign promoting the modern cabinet sink.

In this campaign the cabinet sink will be set forth as the heart of the kitchen, and the copy will impress upon the reader that her entire kitchen of the future depends upon the sink she installs now.

Retail salesmen handling YPS sinks and cabinets will also be furnished with sales tools that carry out the same theme. It is planned to show pictures of kitchens before and after modernization. In the after pictures, the sink will be lifted from the complete kitchen, and shown in a heart where the features of the sink itself will be enumerated.

It is expected that this campaign will lift the cabinet sink into a prominent place in the appliance industry with the result that the housewife will be made cabinet-sink conscious.

To strengthen the line and make sink selling comparable with the selling of other appliances, the Youngstown Pressed Steel Division, of Mullins Manufacturing Corporation, is adding four models to their sink line, making a total of eleven. This will give the retail dealer and his salesmen a line offering step-up selling possibilities.

## ALEA Officers Re-elected and Management Change Announced

J. Markel, president of Markel Electric Products, Inc., Buffalo, N. Y., the president and chairman of the board of governors of the American Lighting Equipment Association, was re-elected to those offices at the annual election of association officers conducted in conjunction with the meeting of that organization held May 20 at Hot Springs, Va.

Other officials re-elected to the board of governors are: J. H. Blitzer, The Lightolier Company, New York City; G. E. Glatthar, Art Metal Company, Cleveland, Ohio; Max Held, Halcolite Company, Brooklyn, N. Y.; W. G. Sawyer, John C. Virden Company, Cleveland, Ohio.

J. W. Milford, head of J. W. Milford & Associates, promotion and public relations counsel to the ALEA, was elected to the post of secretary-treasurer.

It was announcd by Mr. Markel that effective June 2, the general activities of the Association, heretofore managed by Stevenson, Jordan & Harrison, would be centered in the offices of J. W. Milford & Associates, located in the R. K. O. Building, Rockefeller Center, New York City.

## Hygrade Breaks Ground For New Lamp Plant

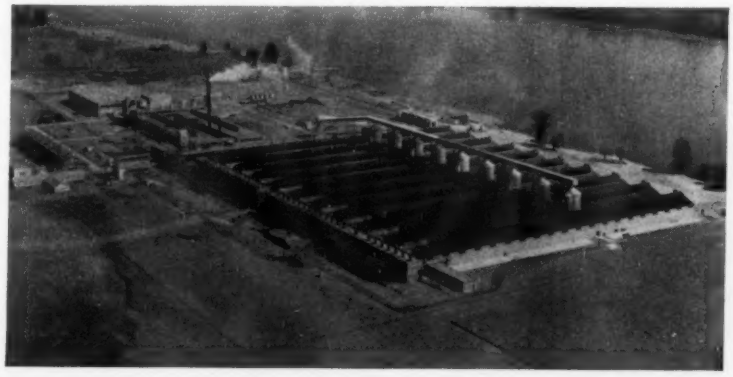
Ground was broken early in June at Danvers, Mass., for Hygrade Sylvania Corporation's new $500,000 fluorescent lamp plant, according to F. J. Healy, vice-president of the company and general manager of its Lamp Division.

The tremendous demand for fluorescent lighting in plants engaged in national defense work as well as in other industrial and commercial fields overburdened the company's Salem, Mass., manufacturing facilities and necessitated the Danvers plant, Mr. Healy stated.

A two-story brick-on-steel structure of ultra modern design, with about 100,000 feet of floor space, the new factory building will be ready for occupancy in the fall. It will be geared for a production capacity of over 100,000 fluorescent lamps per day, and all fluorescent lamp manufacturing operations now being conducted at the Salem plant will be removed to this new building at Danvers when completed.

In the ground-breaking ceremony at Danvers, the first spadeful of earth was dug by F. A. Poor, treasurer of the corporation and member of its Board of Directors. Mr. Poor founded the organization which later became Hygrade Sylvania Corporation at Danvers 40 years ago.

In charge of design and construc-



**Aluminum Company of America's new Washington Works at Vancouver, Wash., completed in 15 months, will produce 150,000,000 pounds annually. The new plant is part of a $200,000,000 expansion program which, in 1942, will double the peak peacetime production of 1939.**

tion of the plant is The Austin Company, nationally known engineering and contracting firm, which currently is erecting national defense plants in various parts of the country. Many of these are of the windowless, "blackout" type pioneered by the Austin Company ten years ago.

Hygrade Sylvania, second largest manufacturer of radio tubes and third largest maker of incandescent lamps, was a pioneer in the development and manufacture of fluorescent lamps and fluorescent lighting fixtures. It has a fluorescent powder plant at Towanda, Pa., and a plant at Ipswich, Mass., which manufacturers lighting fixtures. The Danvers plant, when completed, will relieve the space situation at the Salem plant where more space is needed for the manufacture of incandescent lamps and special products.

The company also has an incandescent lamp plant at St. Mary's, Pa., radio tube manufacturing plants at Emporium, Pa., and Salem, which, with completion of the Danvers plant, will make a total of seven manufacturing plants actively operated by Hygrade Sylvania Corporation.

## R. W. Turnbull Elected Executive VP of Hotpoint

Following the annual meeting of the board of directors, A. D. Byler, president of the Hotpoint Company, has announced the election of R. W. Turnbull as executive vice-president; J. C. Sharp, vice-president in charge of engineering; and I. A. Rose, as vice-president in charge of manufacturing. Other officers are: W. H. Booth, honorary chairman of the board; George A. Hughes, chairman of the board; A. D. Byler, president; G. W. Scott, secretary and treasurer; W. H. Perry, assistant secretary; and W. Jarva, assistant secretary.

Mr. Turnbull, who now becomes Hotpoint's executive vice-president, has been the company's first vice-president since March, 1940. He was vice-president in charge of sales from 1931 to 1940.

Probably one of the best-known

R. W. Turnbull J. C. Sharp I. A. Rose

men in electric appliance merchandising, Mr. Turnbull began his appliance career in 1909 as a salesman for the Southern California Edison Company. The following year he joined the Pacific Electric Heating Company, Ontario, Calif., which made the original line of Hotpoint electric appliances. When the present Hotpoint organization was formed in 1918, he became sales representative for the Pacific Northwest, and in 1924 was made Pacific Coast district manager.

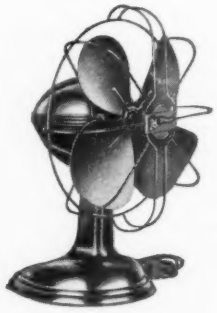
J. C. Sharp, the Hotpoint Company's new vice-president in charge of engineering, joined the Hotpoint company in 1929 as assistant to the range engineer. He became range engineer in 1936 and became chief engineer in 1937, succeeding the then vice-president in charge of engineering, the late C. P. Randolph. Mr. Sharp will continue to carry out the duties of chief engineer in his new offical capacity.

I. A. Rose, new vice-president in charge of manufacturing, has been the Hotpoint factory works manager for the past two years. He will continue to supervise Hotpoint manufacturing operations in all of the company's plants. Mr. Rose joined the Hotpoint Company in 1922 in the Factory Methods Division. A year later, he was made foreman of Hotpoint range manufacturing. He has subsequently held the positions of assistant superintendent, shop superintendent, superintendent of Hotpoint Cicero plant, chief inspector and director of purchases and production.

**This new plant purchased by the Cornell-Dubilier Electric Corp., manufacturers of electrical capacitors, will add over a quarter million square feet of manufacturing floor space to C-D facilities at South Plainsfield, N. J. It is being equipped as rapidly as possible for large scale production to meet the requirements of volume defense orders and the rapidly growing regular commercial production of the company.**

## National Advertising Supports R & M Fans

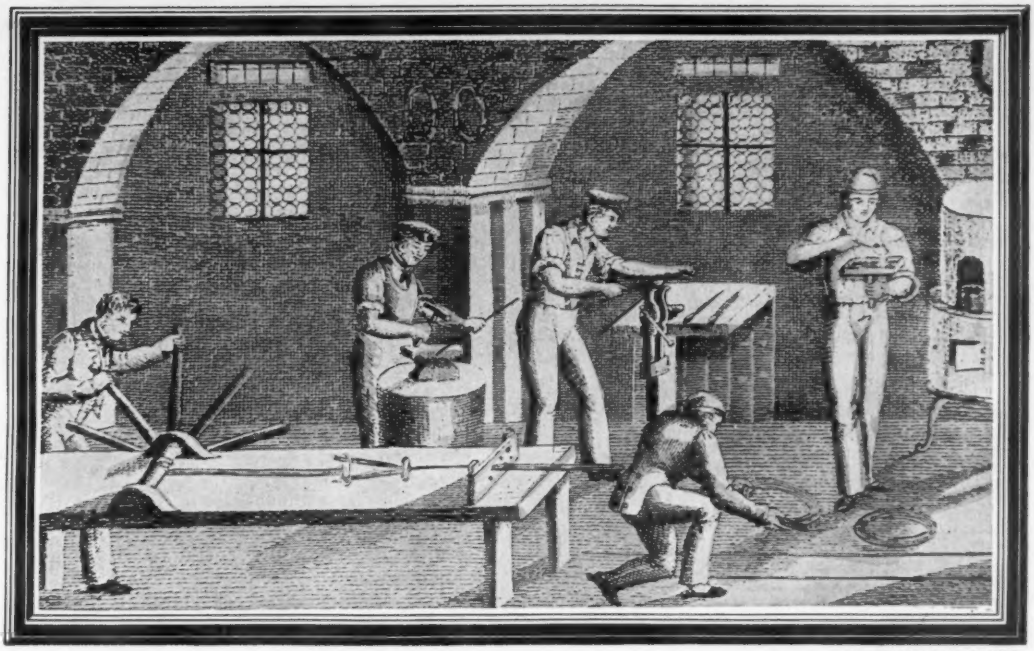
Confident of record sales for fan dealers in 1941, Robbins & Myers, Inc., Springfield, Ohio, is supporting its new line of R & M Banner fans with the biggest national magazine advertising campaign in recent years. Beginning with the May 28 issue five half pages will be carried in The Saturday Evening Post, throughout the summer months.



The schedule also includes five two-thirds page advertisements in Time and Business Week, featuring the entire R & M fan line, including home coolers, air circulators, exhaust fans and de luxe and standard models for home and office. The campaign will aggregate a total of more than 21,000,000 impressions in these three leading magazines.

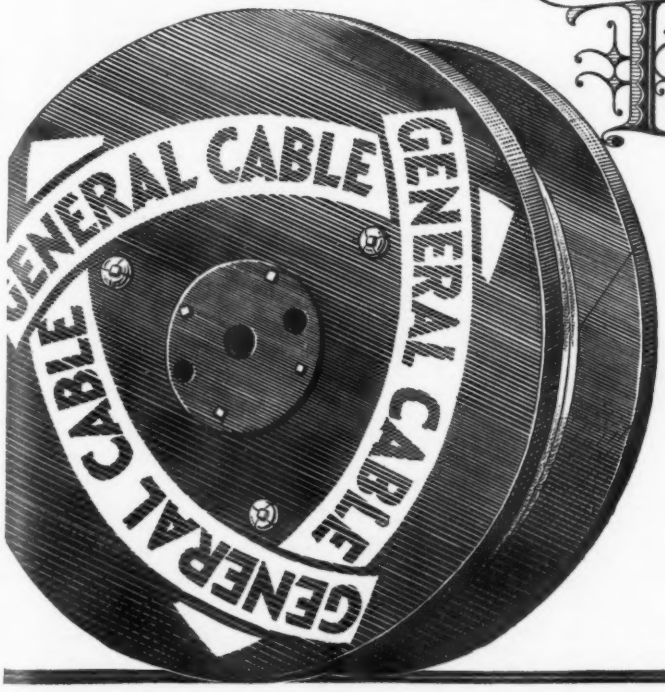
The R & M Banner line was introduced this year to enable dealers to meet increased public demand for popular-priced, quality fans. R & M Banners are offered in three sizes—the 8-inch, non-oscillating, retailing at $3.95; 10-inch oscillating (illustrated) at $10.95, and the 12-inch two-speed oscillator at $17.95. All are equipped with powerful, oversize R & M motors, precision-built gears and bearings and broad, quiet, vibration-free blades. Streamlined design and rich brown finish provide stunning eye appeal.

R & M branch offices, assuring quick service to distributors, are located at 2400 W. Madison St., Chi-



*Engraved in 1828, this record of early wire manufacture would seem to indicate that straight-line production was even then in vogue.*

BETTMANN ARCHIVES




RAPID ADVANCES in the use of electricity for light, power and communications have greatly complicated the art of cable manufacture. Constant research in both cable design and production methods have, however, maintained General Cable Corporation in a preeminent position in the industry.

# GENERAL CABLE

**BARE and INSULATED WIRES and CABLES for EVERY ELECTRICAL PURPOSE**

***STOCKED BY ELECTRICAL WHOLESALERS EVERYWHERE***

*General Cable Corporation Sales Offices:* ATLANTA • BOSTON • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT • HOUSTON KANSAS CITY (MO.) • LOS ANGELES • NEW YORK • PHILADELPHIA • PITTSBURGH • ROME (N.Y.) • ST. LOUIS • SAN FRANCISCO • SEATTLE • WASHINGTON (D.C.)

cago; 1100 Cadiz St., Dallas; 2105 Grand Ave., Kansas City; 500 Camp St., New Orleans; 200 Varick St., New York; 237 Rialto Building, San Francisco, and Brantford, Ontario.

### New Plant Facilities for Paragon Electric Company

To take care of United States Navy contracts and a growing industrial demand for time control instruments, the Paragon Electric Company has moved its manufacturing facilities from Manitowoc to Two Rivers, Wisconsin.

In the new location, the company will occupy a modern brick and concrete building having over 25,000 square feet of floor space . . . double the area of the former plant. Approximately 300 people will be employed. Considerable new machinery of the latest design has been installed. For example, high speed automatic screw machines and automatic precision gear cutters.

The Paragon Electric Company began business in 1905 and has gradually expanded its line of timers, time delay relays, time switches and related time control instruments until it is able to comply literally with the slogan, "If it is timed, Paragon can control it." Instruments are sold to a great variety of industries.

Executive headquarters will remain in Chicago at 37 West Van Buren Street. The officers of the company are: Edward M. Platt, president; Edward V. Platt, vice-president and general manager; George J. Platt, secretary and plant manager; P. R. Rothfus, treasurer.

## News About People

Stockholders of Landers, Frary & Clark re-elected all directors at their annual meeting this week and the directors at their subsequent meeting, in addition to electing three new officers, re-elected all other officers.

The new officers are **Earle J. Van Buskirk,** elected a vice president; **Wm. H. Hanson,** elected assistant secretary, and **Francis J. Dabney,** elected comptroller, the last a newly created position.

**E. J. Van Buskirk**

**R. E. Arnold**

Also announced was the appointment of **Robert E. Arnold,** formerly associated with the Silex Company, as sales manager of heating appliances to the Electric Trade Division. **Hardy B. Payor** was named assistant sales manager of the Range and Water Heater Division of the company.

* * *

**M. C. Welch,** formerly district superintendent for Georgia Power Company, at Augusta, Georgia, has joined the Copperweld Steel Company staff in the South Eastern District.

**M. C. Welch**

He will represent the Copperweld Steel Company in the State of Florida. Mr. Welch is a graduate of Auburn, in electrical engineering. He has been connected with the electric light and power industry since his graduation.

* * *

**James A. Moran,** formerly with the advertising agency of Campbell-Ewald Company, of New York Inc., has been named advertising and sales promotion manager for John C. Dolph Company, insulating varnish manufacturers of Newark, N. J. He succeeds **Charles V. Allen,** who has resigned to join the staff of Robert McKeown Co., Newark, distributors of electrical supplies.

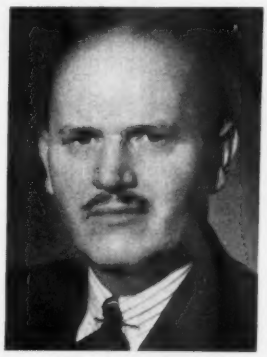
* * *

It was recently announced by **A. L. Evans,** of the Skuttle Sales Company, that **George Greulich** has been appointed as sales manager of that company.

Mr. Greulich has enjoyed many years of experience in the heating and ventilating field. From 1925 to 1928 he was associated with the Socony Burner Corporation in their sales organization, and from 1928 to 1938 he was associated with the Timkin Silent Automatic Company in the capacity of sales manager.

* * *

Appointment of **Charles H. MacMahon** as advertising manager of Norge Division, Borg-Warner Corporation was announced recently by **M. G. O'Harra,** vice-president in charge of sales. At the same time, O'Harra named **S. M. Adams** as sales manager, Detroit Vapor Stove Division to fill



**C. H. McMahon**

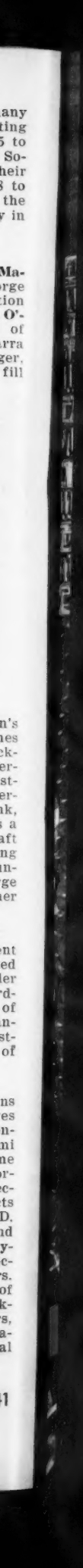
the vacancy created by MacMahon's advancement. Mr. MacMahon comes to his new post with a broad background of experience in both advertising and sales work. He was assistant vice-president in charge of advertising for the First National Bank, Detroit, from 1925 to 1932, and is a past president of the Detroit Adcraft Club and the Financial Advertising Association (national) from 1931 until 1932. His association with Norge and other divisions of Borg-Warner Corporation began in 1932.

* * *

**Harry Biglin,** manufacturers' agent of Atlanta, Ga., has been appointed southern representative for Seyler Manufacturing Co., pole line hardware and construction specialists of Pittsburgh, Pa., according to an announcement by **N. C. Husted,** assistant to the president in charge of sales.

* * *

**Jules J. Dreyfuss** and his two sons have recently established themselves as electrical manufacturers representatives with headquarters at Miami Beach, Fla. Operating under the name Jules J. Dreyfuss & Sons, the new organization will represent Royal Electric Co., Inc., Conduit Pipe Products Co., Conduit Fittings Corp., L. D. Kichler Co., Lloyd Products Co., and Clifton Manufacturing Co. Mr. Dreyfuss has been connected with the electrical business for the past 30 years. He has been in charge of sales of the Marks Products Co., Inc., Brooklyn, N. Y., for the past nine years, where he established a wide reputation and following among electrical wholesalers.



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## THE BEST OFFENSE IS A GOOD DEFENSE

The heart of any defense program lies in production, adequate stocking and distribution. If any one of these three is lacking the front line must eventually fail. Hubbard and Company has *all three* perfected to the highest degree humanly possible. Three huge factories deliver a constant stream of galvanized Hubbard Pole Line Hardware to swell a 6000 ton reservoir of stock for emergency deliveries. A nation-wide distributing system draws on this reserve to maintain smaller units of stock in all the principal cities.

Hubbard and Company is proud of the privilege of teaming with its distributors to provide smooth flowing manufacturing and "pre-promise" deliveries so that together, they may keep the supply lines of power humming for defense construction.

**HUBBARD AND COMPANY**

PITTSBURGH . . . CHICAGO OAKLAND . . . CALIFORNIA

# New Products

## G-E Vacuum Cleaners

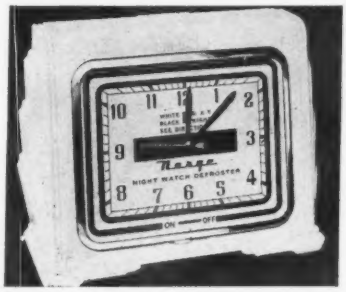
The new vacuum cleaner line presented by General Electric consists of five floor-type motor-driven-brush cleaners, ranging in price from $29.95 to $57.50; two tank-type cleaners, priced at $39.95 and $59.95; four hand cleaners priced from $14.95 to $19.95; and two sets of attachments at $9.95 and $12.95. It is interesting to note that only the least expensive and the most expensive floor cleaners are offered for sale alone—the other three floor cleaners include, for the same price, a hand cleaner, a sweeper, or a set of attachments.

Top model in the floor cleaner line, model AVF-19, with a recommended list price of $57.50, is a strikingly-designed machine in polished aluminum with maroon trim, featuring a 25-watt "headlight", a two-speed motor, foot-operated nozzle adjustment, fully-tufted rubber-mounted brush, condenser to eliminate radio interference, hollow pistol-grip handle holding a dustcloth, and other de luxe features. The motor, which needs no oiling, has a built-in cooling system and is air-cooled by a separate fan. The commutator has been redesigned to increase the life of the brush. Its dust-proof bag is porous on the outside and napped on the inside to provide low dust leakage and a negligible back pressure. An over-sized rubber bumper protects furniture. The nozzle adjustment eliminates stooping, since it is easy to adjust the cleaner for every rug thickness without stopping cleaning. A foot-operated handle lock permits easy tilting over rug-fringe.

In one of General Electric's three cleaner bargains at $39.95, is the combination of a model AVF-25 floor cleaner and an AVH-45 hand cleaner which are illustrated here. Both have motor-driven brushes, and have been styled harmoniously in brown and tan. The floor cleaner has a furniture clearance of seven inches, has a 25-watt vibration-proof headlight, and three-point brush adjustment, among other features.

## Norge Night-Watch Clocks

The Norge Division, Borg-Warner Corporation, last month introduced the new separate Night-Watch Automatic Defroster clock, to retail for only $14.95 and to bring all the advantages of automatic defrosting to Norge models equipped with Handefroster, Coldpack and Sealed Freezer.




A synchronous, self-starting clock with simple plug-in arrangement, the Night-Watch clock acts exactly as does the built-in Night-Watch in the higher-priced models. Defrosting is accomplished nightly from midnight to three a. m., without any attention from the housewife. The new Night-Watch clock can be plugged into all Norge models, 1941 or earlier, which are equipped with the three exclusive Norge features which make truly automatic defrosting possible.

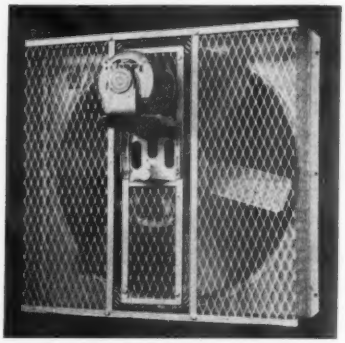
## New Silex Catalog

The new Silex catalog illustrates, describes, and gives prices of the new and shorter line of Silex Glass Coffee Makers. The illustrations are sharp and clean, the descriptions are accurate, complete. The catalog is attractively printed in two colors—blue and black.

Dealers will find the catalog straightforward, easy to use. Its presentation is in line with the new improved Silex policy of making it as simple as possible for dealers to handle the Silex line. The new short line includes only fast-moving coffee makers — both wide neck and narrow neck, and two coffee services. This shorter line greatly reduces the variety of stock numbers necessary for dealers to carry. Dealers will note that a free supply of strainer cloths is included with all units, as well as a Dippex coffee measure. Wherever other equipment is supplied, such as moldex table mats, lower bowl covers, etc., these are clearly illustrated.

## Coolair Window Fan

The American Coolair Corp., Jacksonville, Florida, announces the new Type 28-W Window Fan. Among the many features claimed by the manufacturer for this fan are the following: complete window fan unit, ready for instant mounting and operation; side mounting flanges fasten directly to inside or outside frame of any ordinary size window with six screws; may be placed in upper or lower half of window without interfering with normal operation of window sash; larger side flanges available for wider windows; attractive safety guard completely shields all moving parts; adjustable diameter motor pulley permits changing fan speed to suit the job; equipped with reversible motor and reversing plug on electric cord for blow-in or exhaust operation as desired; entire blade and motor assembly suspended on patented sound-absorbing springs for maximum quietness; oversize, highest quality ball bearing in fan hub for silent, lifelong service; small long hour service motor operates at average cost of



less than 1c per hour; certified air delivery (rated by ASHVE Test Code) of 6,000 cfm; finished in light ivory; overall width, including side mounting flanges, 33 inches; overall height, 31 inches.

## Attic Fan Mailing Piece

An attractive mailing piece to stimulate sales of attic fans has just been released by the Autovent Fan & Blower Co., Chicago, Ill., manufacturers of Coolvent attic fans. The mailing piece is attractively printed in three colors and illustrates very graphically how attic fans reduce temperatures throughout a house and create gentle cooling breezes.

## Niteair Comfort Units

The Lau Blower Company, Dayton, Ohio, announces Niteair Attic Fans available with front and rear guards. By using heavy wire guards on these air comfort fans, it is possible to install them in a great many more places, such as storerooms, factories, stores, restaurants, etc., with the assurance that they are safe for anyone working around these fans.

The use of these guards on Niteair Attic Fans does not cut down the delivery capacity of the fans to any appreciable extent due to the fact that there is considerable free area in the guard grilles.

Model 3041 produces 7500 cfm and is powered by a ¼ hp motor. The front grille for this model weighs approximately 24 lbs. and the rear guard only 23 lbs. This is the smallest Niteair model with this style guard.

Model 4871, the largest unit, produces 20,000 cfm and is powered by a ¾ hp motor. The front grille for this model weighs approximately 48 lbs. and the rear guard 42 lbs. There are four intermediate sizes made to

# TO ALL AMERICANS

## who have not been Drafted

Tonight, when the sun goes down, it will set not only on homes but on Army camps, Naval stations and defense outposts.

It will set on one and a half million young men in uniform. Most of them will be far from home. Many of them will be in places remote from towns and cities.

What their life will be like *after* the sun goes down depends largely on you.

These men need clubs...places where they can go for recreation and comfort in the evening . . . places where they can rest and relax and enjoy good companionship...places where they can have help and advice if they want it.

To provide such service clubs, six of America's most experienced organizations have banded together to form the U. S. O. (comprising the Y. M. C. A.; National Catholic Community Service; Salvation Army; Y.W.C.A.; Jewish Welfare Board; National Travelers Aid Association).

The U. S. O. will set up more than 360 of these clubs. The Government will supply the buildings...but to the American public belongs the responsibility of running them and financing them. The cost for the first year is estimated at $10,765,000.

So, to you who have not been drafted, we say...here is the chance you have been waiting for to aid in national defense. And if you are getting more than $21 a month yourself, see if you can't share some small part of it to make life more pleasant for those who *have* been drafted.

Will you join the army *behind* the Army? Say yes...today!

**YOUR CHANCE TO SERVE—SUPPORT THE U★S★O★**

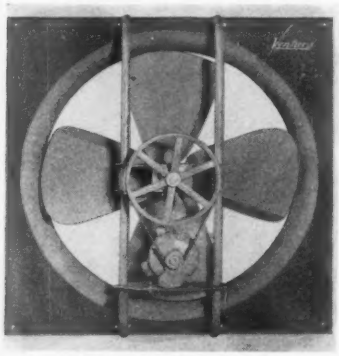
***Send your contribution to United Service Organizations, National Headquarters Empire State Building, New York, N. Y., or to your local U. S. O. Committee.***

deliver 10,000, 12,000, 14,000 and 17,000 cfm, respectively.

Niteair front and rear guard grilles may be obtained separately by dealers and jobbers who have already stocked Niteair Attic Fans. Prices are subject to standard fan accessory discounts.

### Ventura Commercial Fan

The new Ventura commercial fan offered by the American Blower Corp., Detroit, Mich., consists of a powerful quiet operating 4-bladed wheel (steel blades), steel wall plate with die formed inlet, shaft, rubber mounted fan bearings and V-belt drive completely assembled with motor mounted on air intake side as shown in illustration.



Propeller fans are made with direct connected motors or with V-belt drive. Each design has its advantages for a particular installation. On smaller size fans the motor operates at higher speeds and consequently it is just as economical to use a direct connected motor as a V-belt drive. However, on larger size fans the motors must operate at lower speeds if direct connected and therefore it is more economical to use a V-belt drive.

### "V" Belt Fan Drive

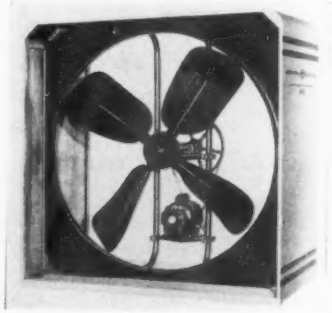
The low cost, all purpose, quiet operating ventilating Allvent fan introduced to the market about a year ago by Autovent Fan & Blower Co., Chicago, has now been greatly improved through re-design by changing it to a multiple-bladed unit in place of the three-bladed construction originally introduced. The new blade assembly is designed to overcome normal restrictions in the air flow, to prevent "churning" the air and, at same time, to absorb shocks and sudden changes in air loads that ordinarily overtax motor capacities.

The new type fan operates with "V" belt drive from standard speed (1725 R. P. M.) motor. It is furnished in capacities of 5,000 to 23,000 cfm, inclusive. The unit is ruggedly constructed wth all parts die-formed. Fan blades are of 14 or 12 gauge sheet steel depending on fan size. Units up to 36 inch diameters have six blades, sizes up to 54 inches have eight blades. Assembly is rigidly held in place by four tubular steel supports welded to a square panel of 16, 14, or 12 gauge sheet steel, depending on size. Fan bears certified ratings of National Association of Fan Manufacturers and American Society of Heating & Ventilating Engineers.

### New G-E Home Cooling Units

General Electric has been devoting several years of research and experiment to a solution of the growing demand for an economical method of bringing summer comfort to the home. In a newly announced home cooling unit, General Electric engineers believe they have found the answer. The new G-E home cooling unit is designed for adaptation to the varying needs of different types of homes.

The home-cooling unit is designed for long life and quiet, vibrationless operation. Smartly styled by Ray Patten, the fan unit is enclosed in an attractive square wooden housing. The housing itself is mounted on rubber blocks, the wood casing is designed to prevent transmission of noise, and every moving part of the fan unit is isolated from other parts by resilient rubber.



The suction chamber, ceiling grille, and air outlet openings are easily constructed and may be adapted to the varying conditions of different homes. The capacities of each element are calculated according to the fan laboratory tests.

The most economical and efficient cooling of different-sized homes is made possible through the choice of three sizes of home cooling units with fan sizes of 36, 42 and 48 inches. Prices of the units range from $99.95 to $159.50.

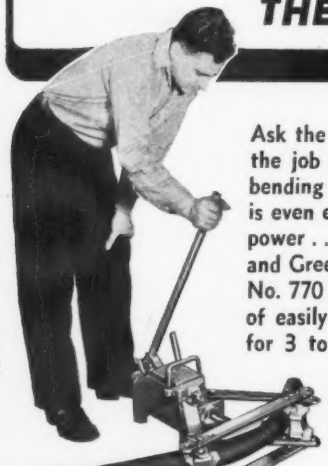
### "Permaflector" Catalog

Catalog No. 40, dated January, 1941, has just been issued by the Pittsburgh Reflector Company, Pittsburgh, Pa. This new publication contains 112 pages of illustrations, specifications, and other data relating to "Permaflector" lighting products.

The new catalog, which is spirally bound for convenient use, includes an interesting illustrated discussion on Permaflectors as well as detailed information on fluorescent equipment, exterior flood-lights, luminaires, interior spots and floods, and other Permaflector products.


# GREENLEE BENDERS

## EASIER AND FASTER FOR THE MAN ON THE JOB



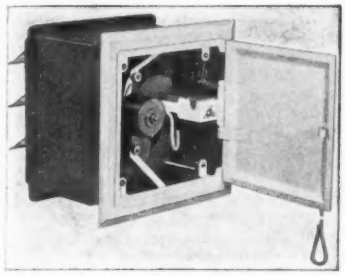
Ask the man who knows . . . the operator right out on the job doing the bending . . . and he'll tell you that bending conduit with the Greenlee Hydraulic Bender is even easier than it looks. To bend conduit requires power . . . approximately 31 tons for 4-inch conduit . . . and Greenlee Hydraulic Benders have the power. The No. 770 Bender, for 1¼ to 3-inch conduit, has 25 tons of easily developed power, while the No. 775 Bender for 3 to 4½-inch conduit, has 40 tons of hydraulic power. One man can quickly develop this power by simply pumping the handles. These light, portable benders are built compactly into one unit, are easily carried to the job and set up, and will not move and twist about when in use. Write today for our new S-116 Bender Booklet . . . it will show you how you can cut bending costs on every job.

The No. 770 Bender, shown above, is designed to make bends in 1¼, 1½, 2, 2½, and 3-inch conduit, while the larger No. 775 Bender will bend 3, 3½, 4, and 4½-inch conduit and pipe.

GREENLEE TOOL CO., 1707 Columbia Ave., ROCKFORD, ILL.

### Kitchen Vent Fan

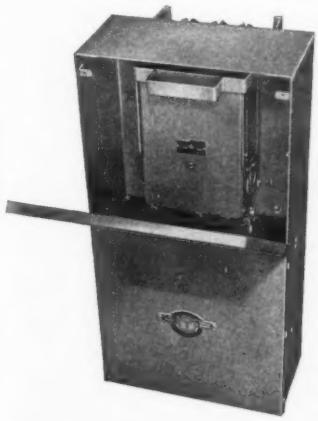
Announcement is made by Signal Electric Mfg. Co., Menominee, Michigan, of the addition of a new feature to its V-50A Kitchen Wall Box Vent Fan in the automatic lever-operated shutters. Other important features include totally enclosed motor, rubber mounting for motor, 10-inch quiet type fan, telescopic adjustment for wall thickness from 6



inches to 24 inches, detachable plug, cast iron outside frame with white baked enamel finish, inside door for extra weather protection, close-fitting shutters, and opening and closing of the door with the handle starts and stops the motor and also opens and closes the shutters. This vent fan, illustrated here, can be installed in new or old homes.

### "Capacitor" Flex-A-Plug

The Trumbull Electric Mfg. Company, of Plainville, Conn., has just placed on the market, for use in connection with their Flex-A-Power (feeder distribution system) a new Capacitor Flex-A-Plug consisting of a fusible heavy duty switch or Type "AT" circuit breaker in combination with a G.-E. Pyranol filled capacitor.



This plug may be utilized to improve the power factor of a system or, if overload condition exists, to reduce the current to within safe limits and reduce losses through heating because of lower current.

These Capacitor Plugs can be distributed approximately in the same manner as the load, resulting in maximum benefits and savings—they are easily installed and can be moved as the loads are relocated.


RUBBER COVERED POWER CABLES • BUILDING WIRE

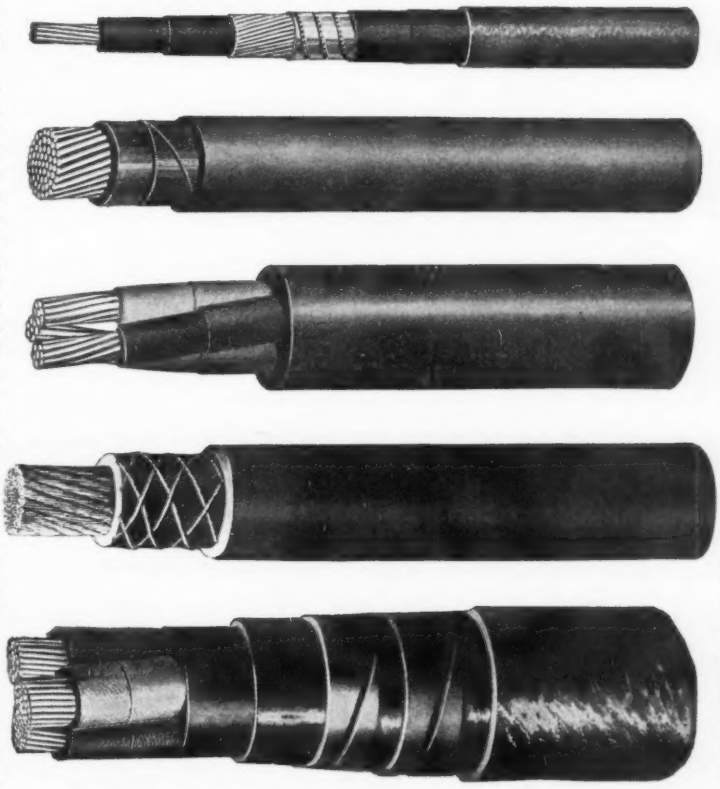
CRESCENT

*Manufactures the*

**HIGHEST QUALITY**

*Electrical Wires and Cables*

**A FEW OF WHICH ARE ILLUSTRATED HERE**



CRESFLEX NON-METALLIC SHEATHED CABLE • SERVICE ENTRANCE CABLE • MAGNET WIRE • BARE WIRE

VARNISHED CAMBRIC • FLEXIBLE CORDS • LEAD-ENCASED AND PARKWAY CABLES • ARMORED CABLE

CRESCENT INSULATED WIRE & CABLE CO.

*Ask Your Wholesaler For*

**CRESCENT**

**WIRE and CABLE**

*Factory:* TRENTON, N. J.—*Stocks in Principal Cities*

SOUTHERN REPRESENTATIVES

ATLANTA, GA. Edgar E. Dawes A-4 Rhodes Bldg. Annex

NEW ORLEANS, LA. Paul Hogan, Jr. 823 Perdido St.

DALLAS, TEXAS Huie-Simmer Co. 103 Thomas Bldg.

CRESCENT ENDURITE SUPER-AGING INSULATION

Discharge resistors are built into each capacitor unit to meet the National Electrical Code requirements for safety discharge at 50 volts or less in one minute. In addition, these plugs also may be equipped with Neon lights which by going out would indicate a ground on any one particular phase. They are available in 230 and 575 volts, and are illustrated and described in Bulletin No. 408.

### Industrial Multi-Breakers

Square D Company, Detroit, Michigan, announces a new Industrial Multi-breaker for use on 230 volt A. C. systems. Both 2 and 3-pole forms are available in capacities from 15 to 100 amperes. The enclosure is dust-resisting with a felt gasket between the box and cover. The operating mechanism, including the die cast external handle, is mounted on the cover of the box so that when the cover is removed, the entire interior of the box around the breaker is left free for wiring. A quick make and break mechanism is also incorporated on the cover assembly. Indication of a tripped condition of the breaker is provided by the white target signal which appears behind a glass window in the nameplate whenever the breaker trips out due to a short circuit or overload.

Industrial Multi-breakers are very compact, the 50-ampere size measuring 11-⅛" high by 6-⅝" wide and the 100-ampere size measuring 13-⅛" high by 9-⅜" wide. The front operation of the breaker unit permits close ganging of units.

The breaker unit used in Industrial Multi-breakers are all common trip so that an overload on any pole will cause all poles to trip simultaneously. This eliminates the possibility of the breaker causing the single phasing of polyphase circuits. A thermal element affords a time lag on momentary overloads while a magnetic trip feature causes instantaneous tripping on heavy short circuits.

### Remote Control Starter

Lloyd Products Company of Providence, R. I., makers of molded fluorescent lighting accessories have designed, developed and recently placed on the market a "remote control" starter socket for fluorescent lighting units. It may be mounted at any distance from the unit and in any position convenient for insertion or removal of starter without disturbing the lamp itself.

The new starter socket embodies the patented "Lobster Claw" dual contact and lock which is proof against vibration and shock. This unique brass contact, found only in Lloyd starter sockets, always maintains positive contact, and successfully prevents any possibility of the starter shaking loose. The casing is made of a special, high strength plastic to resist breakage and the complete unit has been approved by Underwriters' Laboratories, Inc.

### Fluorescent Lighting Equipment

The Wiremold Company, Hartford, Connecticut, announces a new type of deluxe glass enclosed fluorescent lighting equipment adaptable for use as single units, double units or continuous line-o-lamps runs. An outstanding feature is the fact that this new equipment is built around standard Wiremold No. 3000 Channel and fittings with the addition of decorative mullion and end fittings to hold the opal reeded glass enclosures. Existing bare lamp installations on No. 3000 Channel can thus be quickly converted to enclosed type. Hanger and canopy fittings are available for ceiling or suspended installations. New Catalog FL-4, now on the press, will give full listings, descriptions and lighting data.


**Save 25% . . . in Material and Connecting Time**
**WITH B-M CONNECTORS AND COUPLINGS**

**Popular, Simple Method**

**Saves 25% on material, 25% to 50% of connecting time. Makes installations quick and easy. Eliminates complications and ends fussing with nuts to tighten.**

*Approved by Underwriters Laboratories*

**ONLY ONE TOOL NEEDED**

Costs you only $1.25 for the patented B-M indenter (½" size handles 80% of all installations). Just two squeezes, and you have a smooth, neat connection. No other tools required. This tool can save you many times its cost on the first job.

**STRONG, NEAT CONNECTIONS**

You welcome the speed and ease that the B-M system puts in your hands. These fittings give you complete, *well finished work* in a hurry—on all average jobs (they're non water-tight).

*Distributed by*

The M. B. Austin Co. Chicago, Ill.
Clifton Conduit Co. Jersey City, N. J.
The Steelduct Co. Youngstown, Ohio
National Enameling & Mfg. Co. Pittsburgh, Pa.
Clayton Mark & Co. Evanston, Ill.
General Electric Co. Bridgeport, Conn.
Enameled Metals Pittsburgh, Pa.
Triangle Conduit & Cable Co. Elmhurst, New York City.

**BRIEGEL METHOD TOOL CO., Galva, Ill.**


### Outage Indicator For Rural Lines

(*Continued from page 29*)

service and a new demand meter. In general, REA systems pay less for the devices, because the inventors charge no royalties for such users.

While working on the later stages of the automatic outage locator, the two young inventors worked in collaboration with Radio Engineer Stephen Jucius and Chief Radio Engineer Fred Johnston, of the Stewart-Warner Corporation. The equipment is being manufactured by the Stewart-Warner Corporation. Already, 3 REA systems, one each in Virginia, Michigan, and Minnesota, have ordered installations, in addition to the experimental one.

D. E. Basler, one of the co-inventors, who devised the new equipment and made it practical for commercial production, was graduated from the engineering division of the University of Michigan in 1938; J. F. Atkinson, also an engineer-trainee, was graduated from the University of Florida in 1939.

Dolph's

★ CHINALAK

Improved with American grown Tung Oil, is more than ever before the nation's outstanding Black Baking Varnish.

In addition to being specified by many leading motor manufacturers, CHINALAK'S exceptional qualities make it the ideal insulating varnish for use on repair jobs where motors undergo severe operating conditions.

It is oilproof, waterproof, resists attack of acids, alkalies, chemical fumes, etc., and produces a finish that is extremely flexible and gives dependable, lasting protection to windings.

Don't allow good workmanship in your plant or repair shop to suffer by using an inferior varnish. Insist on CHINALAK!

Descriptive literature, prices, etc., may be had by writing

JOHN C. DOLPH CO.

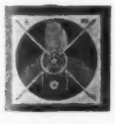
*Insulating Varnish Specialists*

166 Emmett St. Newark, N.J.

(*Reg. U. S. Pat. Off.)

**ANY** DOMESTIC REFRIGERATOR
Can be Made
AUTOMATICALLY DEFROSTING
With the ADJUSTABLE
**AUTOMATIC MODEL 110**
"Plug-in" Type . . . No Installation
**TIME SWITCH**
LISTING AT ONLY $11.50
Cuts Refrigeration Costs . . .
Increases Refrigeration Efficiency
Write for Information
AUTOMATIC ELECTRIC MFG. CO.
Mankato, Minnesota

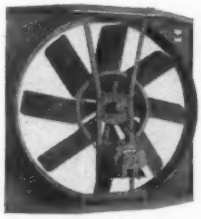
THE **COOLVENT SYSTEM**
of Home Ventilation



*brings lasting satisfaction*
*to your customers*
QUIET - Steel Construction - GUARANTEED
Backed by 25 years of experience
*Distributed all over the South*
*by LEADING ELECTRICAL JOBBERS*
CERTIFIED RATINGS
MEMBER OF NAFM
AUTOVENT FAN & BLOWER CO.
1825-27 N. Kostner Ave., Chicago, Ill.

For PROFITS and PERFORMANCE
I'd rather sell
COOLAIR Attic Fans

Writes Mr. H. J. Somers, of H. J. Somers, Inc., Detroit, Michigan, pioneer attic fan dealer and manufacturer of air handling equipment.



New, Improved Coolair Home-Cooling Fan.

"After long experience with various makes of attic fans," says Mr. Somers, "I adopted the Coolair fan three years ago because the customer gets quieter, more satisfactory performance and the dealer doesn't have to burn up his profits making service calls. What's more, the Coolair people are really fine folks to deal with."

Patented sound-absorbing springs, oversize ball bearings, welded all-steel construction, finest long hour service motors, a fan size for every commercial and residential job . . . these are some of the quality features that have sold hundreds of *experienced* dealers like Mr. Somers on Coolair fans.

These are some of the reasons you'll make fewer service calls and bigger profits when *you* start selling Coolair fans!

Right now is the time to line up with Coolair, while your prospects are sweltering in the heat. FREE illustrated catalogs, direct mail pieces, local newspaper ad mats and other sales helps are ready for you. Write today for details and franchise information.

New Coolair Attic Package, complete with fan and automatic ceiling shutter, greatly simplifies installation.

*Don't Delay*

MAIL THIS COUPON TODAY!

American Coolair Corporation,
Jacksonville, Florida

Please send me information on the complete line of Coolair fans.

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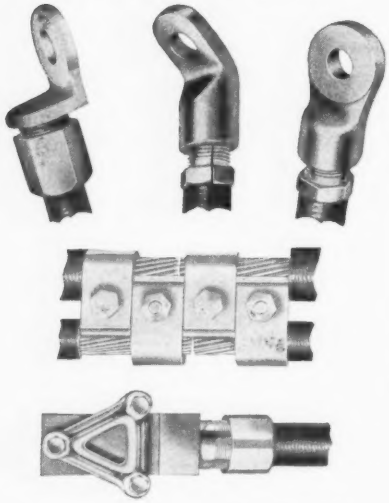
Coolair Ventilating and Cooling Systems
AMERICAN COOLAIR CORPORATION
Manufacturers . . . . JACKSONVILLE, FLORIDA

*Here's why*

**GORILLA GRIPS**

*are better*



**Permanent Grip**—In every Gorilla Grip Contactor the principles of nut and wedge are used for a maximum compression, dependable locking action in every conductor.

**Perfect Contact**—Pressure is uniformly distributed over full contact area of the conductor.

**Wire Application**—There is a Gorilla Grip for every conductor, no matter where it taps or terminates.

**Salvage**—Can be used over and over again.

**Easy Installation**—Requires no special tools.

**Gorilla Grip Stock Sets.**
**Assembled to meet your needs.**
**Write for descriptive book.**

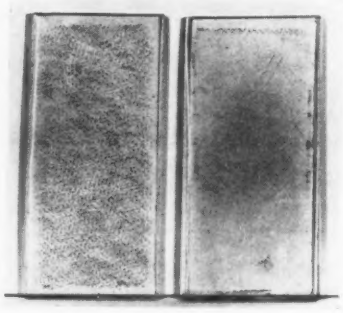
**National Electric**
**PRODUCTS CORPORATION**
**300 Fulton Bldg., Pittsburgh, Pa.**

### Dolph Clear Glascote

John C. Dolph Co., Newark, N. J., announces addition to the Dolph line of insulating varnishes. This new material is known as Dolph's No. 253 Clear Glass Coater. It is used primarily to protect welding drop lights from weld spatter.

Many shipyards have reported that production is often held up by welders' lights being broken by welding spatter. Actual tests conducted in several shipyards have proven that lamps coated with Dolph's No. 253 Clear Glass Coater long outlast untreated lamps. It is also useful for protecting porthole glass and other surfaces during construction. A film of No. 253 Clear Glass Coater prevents pitting from welding spatter. It can be removed readily when welding is completed.

Dolph's No. 253 Clear Glass Coater air dries on flat surfaces in thirty minutes. It is transparent and does not darken under heat. It is generally applied by dipping.



The effectiveness of the new Dolph Glascote is illustrated in the picture above which shows two pieces of glass used for 20 seconds each in a welder's helmet. The untreated piece at left shows the pitting that results from welding "spatter," while the piece at right, treated with Glascote, shows no such pitting.

### A-C Watthour Meters

Featuring A-C watthour meters, including singlephase, singledisk 2, 2½, and 3 element, meter and time-switch combinations, maximum demand registers, and accessories, a new 48-page bulletin has just been issued by the Sangamo Electric Company. Design and construction details are described and illustrated. Views of assembled component parts of meters, such as driving elements, grid assemblies, registers, and bearing systems, are shown. The booklet contains connection diagrams, outline dimensions, and prices of the complete Sangamo A-C meter line. Ask for Bulletin No. 97. Sangamo Electric Company, Springfield, Illinois.

### Ideal "Screw-Tite" Lugs

A new solderless, "Screw-Tite" lug is announced by the Ideal Commutator Dresser Co. Sycamore, Illinois. This lug is set screw type made of seamless, pure electrolytic copper with a heavy brass check-proof shell that reduces heating. Full current carrying capacity is evenly distributed from wire to lug.

Eight sizes are available for No. 14 wire to 2,000,000 cir mil cable. Each size is suitable for a wide range of wire. One or two hole types are available with square or round ends. Special sizes and angular types of "Screw-Tite" lugs are also available.

The Ideal "Screw-Tite" lug is fully approved by Underwriters' Laboratories, Inc.

### Metal-Clad Switchgear

Heavy duty metal-clad switchgear for use in steel mills, industrial plants, substations, etc., is described in a 15-page bulletin announced by Westinghouse Electric and Manufacturing Company. These units are rated at 600, 1200, 2000, and 3000 amperes for service up to 15000 volts with interrupting capacities between 1000 and 500,000 kva.

General information and distinctive features common to all units are discussed. Both indoor and outdoor types are completely described, attention being given to housing, control devices, elevating mechanism and oil circuit breakers. Photographs and diagrams are used to illustrate the text. Ratings and physical dimensions are tabulated.

A copy of Descriptive Data 32-160 may be secured from department 7-N-20, Westinghouse Electric and Manufacturing Company, East Pittsburg, Pennsylvania.

## What's Being Said and Done in Washington

(*Continued from page 31*)

"We must plan as fair and easy a system of priorities as possible but we must see that essential defense housing gets material next in line after bombers."

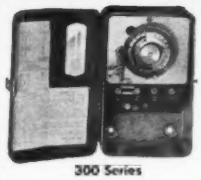
In the curtailment of civilian goods production the defense program to date has followed the pattern of a plan proposed by Jerome Frank a year ago when he was chairman of SEC, which would divert $20 billion a year for the production of armaments. Curtailment of automobile production, proposed taxation by Leon Henderson on refrigerators, washing machines, and other durable goods that compete with the defense program are steps in that plan. Next step, if the Frank plan is followed through, would be curtailment of one half billion dollars in expenditures on home construction.

### Defense Housing Ponders Refrigerator Installation

The Federal Works Agency is now working up to a decision on the question of whether to give electric appliance dealers a chance

## Need a TIME SWITCH?

**Paragon**
**MAKES ALL TYPES**


300 Series

G Series

PARAGON makes a dependable, precision unit for every time switch need.

**300 Series** . . . Ideal for signs and general time switch applications. Just two exposed gears. Only $13.00 list.

**G Series** . . . Heavy duty, Synchronous. Designed for extra long, hard service. Indoor or outdoor models, with or without Sunday and holiday cutouts.

Numerous other types available. Send for a complete catalogue. PARAGON ELECTRIC COMPANY, 409 South Dearborn Street, Chicago, Illinois.

***Southern Representatives***

William E. Hopper, 357 Marietta Street, N. W., Atlanta, Georgia
George E. Anderson Co., Santa Fe Building, Dallas, Texas

*Large Stocks for Immediate Shipment in Atlanta and Dallas*

**Paragon Chicago**

BUILDERS OF CONTROL INSTRUMENTS . . . SINCE 1905



## INSTANTANEOUS *Electric* HEATERS

**HOT or COLD WATER from the SAME FAUCET**—when you want it.

• • • The Instantaneous Electric Water Heater is not a portable lamp socket device, but—as shown—is a compact, self-contained apparatus (10½x4¼ inches). Quickly and inexpensively installed. Operates on AC.

Approved by Underwriters Laboratories, Inc.

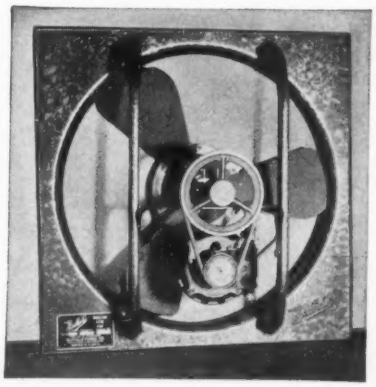
**DISTRIBUTORS WANTED**

Mfg. By THE ELECTRIC HEATER COMPANY
BRIDGEPORT, CONNECTICUT, U. S. A.



## "Buffalo" DEALERS BREAK RECORD!

TO DATE MORE BREEZ-AIR FANS HAVE BEEN SOLD THAN DURING ENTIRE 1940 SEASON.



●Here's an Idea That's Taking Hold Like Wild-fire

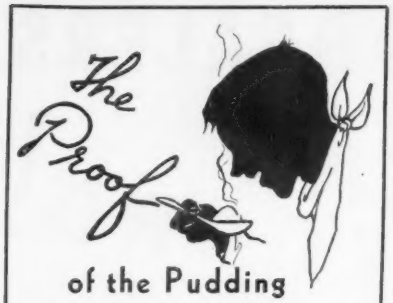
Yes, it's true. Home cooling, via the attic route, is gaining rapid acceptance. It's getting more publicity every day. So cash in this season—NOW—with *Buffalo Breez-Air* Home Cooling Fans. They're easy to install . . . quiet in operation . . . *effective.*

Installed in the attic and switched on after sundown (see diagram below), the *Breez-Air* pushes out the accumulated hot air that crowds the house, draws in the cool night air, provides a comforting breeze in every room.

No high-pressure selling needed to move these fans! Get started today. Write or wire for details. New sales promotion helps now ready.

**BUFFALO FORGE COMPANY**
210 Mortimer Street, Buffalo, New York

**"Buffalo" BREEZ-AIR FAN**
*The Quality Home Cooling Fan*




of the Pudding

*is In the Eating*

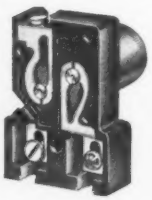
If he didn't like it he wouldn't eat it. And, if electrical contractors and dealers the country over didn't approve of Lloyd Lampholders, Starters and Starter Sockets, the orders wouldn't keep rolling in, in always increasing numbers. They prove that

LLOYD LEADS

HERE'S WHAT
One Customer Says

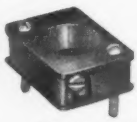
"We can honestly say that we believe the Lloyd Starters, the Lloyd Starter Sockets and Lloyd Lampholders are the best on the market in design, quality and performance —and that Lloyd ability and willingness to serve are unexcelled."

***This is but one of the many letters in our files commending Lloyd products. Send trial order or ask for latest Lloyd bulletin.***



Cat. 252 — Starter Socket with "Lobster Claw" dual spring lock. Pat. Pend.

Cat. 251 — Lamp Holder, black. Cat. 251-W, white. Pat. Pend.



Cat. 352 — Separate Starter Socket for remote mounting. Has "Lobster Claw" dual spring lock. Pat. Pend.

LLOYD STARTERS

FS-2 15 and 20-watt
FS-4 30 and 40-watt
Certified by Electrical Testing Laboratories

FS-6 100-watt

All Lloyd Products are Listed and Approved by Underwriters' Laboratories, Inc.

LLOYD PRODUCTS CO.

Providence, Rhode Island

*Representatives in 22 Leading Cities*


to sell refrigerators, electric ranges, and water heaters to defense housing tenants or buy this equipment through Government procurement and install it at Federal expense. Under the last $150 million appropriation bill for housing, it is provided that the Federal Works Administrator use his discretion in this matter. FWA is sounding out sentiment around the country and has about decided to give the dealer a chance at this market, according to officials of the Agency. FWA has on order 25,000 refrigerators purchased under the first housing appropriation. Over 10,000 units have been constructed, which leaves 15,000 refrigerators yet to be installed. It will be two or three months before FWA has to decide whether to buy more refrigerators or turn this business over to electrical retailers.

---

## Georgia Lighting Men Prepare for Convention

*(Continued from page 25)*

ed the entire afternoon to the discussion of lighting subjects, and the evening to the banquet and dance honoring the National President, was held in Atlanta. It is expected that a regional conference will be held yearly, supplementing the national convention, which should prove to be of material help to all interested in lighting.

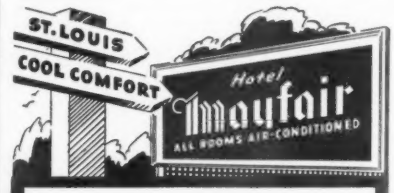
The present officers of the Georgia Chapter are: chairman, Ivar H. Stockel, Benjamin Electric and Manufacturing Company; secretary and treasurer, James F. Whitehead, Jr., Georgia Power Company; and a board of managers including C. A. Conklin, Westinghouse Electric and Manufacturing Company, F. E. Lott, Economy Electric Supply Company, and M. E. Olson, General Electric Company.

An example of the work that is being accomplished in the Southeast is to be found in a series of "Magic Light Shows" conducted throughout Georgia recently. Although this was not an official activity of the Georgia Chapter, it was planned and conducted by members of the Chapter. College students and laymen indicated tremendous interest in the science of seeing as presented in the shows.

Conducted by lighting specialists of the General Electric Company and sponsored by the Georgia Power Company, 15 performances were attended by a total of 6,703 persons, or average audiences of 447. Twelve of the shows were held on college campuses, one at a high school, one in connection with an electric cooking school, and another for the general public at a city auditorium. In most instances, the only promotion of the event was the posting of display cards on bulletin boards and announcements to science students.

The Magic of Light troupe included Mel Olsen and Hal Horton, of General Electric's southeastern division lighting staff, and Jess Long, Georgia Power Company lighting specialist.

The program consisted of a skit on the history of light, presentations on the science of seeing, the IES lamp, lighting costs, and lighting sources. The following kinds of light sources were shown and, in most instances, demonstrated: germicidal, sun lamp, ultraviolet, "midget sun," 50-kw lamp, cold light, fluorescent tubes, wireless light, sodium and mercury lamps; also, the electric eye, the color spectrum, examples of architectural lighting, and the kaleidoscope.


In St. Louis, Hotel Mayfair is the choice of seasoned travelers. They appreciate its downtown location . . . enjoy its friendly, restful atmosphere, courteous service, comfortable rooms and its restaurants where fine food and drink are traditional.

Every room is noiseproofed . . . has private bath, ice water, radio and guest-controlled air-conditioning. Rates: over 50% of all rooms $3.50 or less, single; $5.00 or less, double.

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Mayfair
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*Nearby Parking and Garages*

# SEPCO--Continuously Improved for 26 YEARS

The manufacturers of SEPCO are specialists in electric water heating, and have been since 1915. Year after year of careful, tested improvement, with quality always taking precedent over price competition, has made the SEPCO line one that sells easily . . . and STAYS sold, with low-cost, trouble-free, satisfactory performance for your customers.

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# CHROMALOX RANGE UNITS

Fit any electric range in one service call, from a small stock of these units. Low inventory, quick servicing, gratified customers. It means greater profits for you. Write for the full story.

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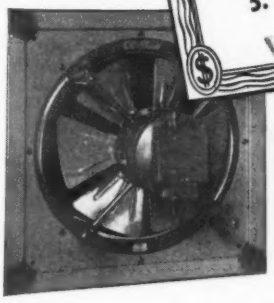
**EDWIN L. WIEGAND CO.,** 7600 Thomas Blvd., Pittsburgh, Pa.

# GET MOST FOR YOUR MONEY!

1. WELDED CONSTRUCTION
2. LIGHT WEIGHT
3. EASY INSTALLATION
4. 16 GAUGE METAL BLADES
5. FAMOUS STURTEVANT ENGINEERING



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Wind-O-Vane Fan

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You get the last word in ventilating fan construction—when you specify Sturtevant.

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You get all of the advantages which only 81 years of air engineering experience can assure.

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Hagerstown, Md.
Atlanta, Ga.
Macon, Ga.

## Why Measure Lighting In Foot-Candle Units?

(*Continued from page* 23)

away from the working plane, we continue to insist on rating their lighting in foot-candles.

Is it any wonder that they throw up their hands in holy horror when 50 foot-candles are recommended? Most people squint their eyes to keep out the expected glare when you even mention 50 foot-candles. As a matter of fact, outdoor daylight in the shade of a tree is good lighting. It is that high standard of good lighting made famous by artists who insisted on north light. It is shadowless, glareless light that gives highest visual accuracy and brings out true color values and real qualities. Why 50 foot-candles are only five per cent of such a well known and recognized practical standard of lighting. Any practical business man or industrial manager can visualize clearly how little light five per cent of daylight represents. And yet, when we call it 50 foot-candles, we actually frighten them. They know that that's too much light!

I think it was Mark Twain who commented on the number of people who knew things that were not true. It is little wonder that the vast majority of fluorescent fixtures that have been bought to date have been sold on the basis of cutting the light bill rather than on the basis of better light for bigger profits.

Why not make it as easy as possible for our customers to understand. They can understand five per cent of daylight better and will buy it more quickly than 50 foot-candles. We must take the lead in selling fluorescent lighting with full recognition of its benefits and limitations, so clearly enumerated and described by the lamp manufacturers. It is a wonderful lighting tool, but far from being a panacea for all lighting problems. Clearly, this is the job of the well trained commercial utility all-service selesman, cooperating more closely with his enlightened fixture sales allies.

## Fiberglas Insulation Influences Design

(*Continued from page* 18)

The value of Fiberglas-insulated equipment has been demonstrated over several years on motors used to operate conveyors on the production units at the Owens-Corning Fiberglas Corporation plant in Newark, Ohio. Eighty per cent of the time these conveyors operate at low speeds and require 30 horsepower. Twenty per cent of the time they operate at higher speeds necessitating a 40 horsepower driving motor.

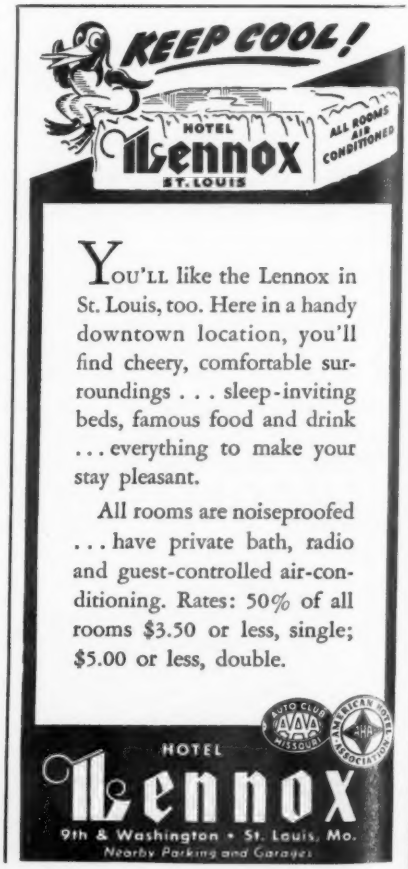
If a Class "A" insulated motor had been used on this job, it would have been necessary to install a 40 horsepower motor which would have operated four-fifths of the time at three-fourths load, However, a 30-horse power Fiberglas-insulated Class "B" motor was installed. It operated at full load 80 per cent of the time and is overloaded to do the 40 horsepower job only 20 per cent of the time. Results over several years have been entirely satisfactory.

The cost on a 30 horsepower Fiberglas-insulated motor was approximately the same as the 40 horsepower Class "A" motor. There are a great many cases in industry where similar situations exist. Based on installations in actual operation, the 75°C Class "B" Fiberglas-Insulated motor not only affords greater dependability but in many instances actually gives better performance and economy in use than the larger size Class "A" insulated motor.

Fiberglas is a material which is produced to completely controlled quality specifications. Thus it has greater strength, excellent uniformity and better adaptability than most other insulations. Because of these superior characteristics, many manufacturers report that it is easier and cheaper to install.

One manufacturer points out that 100 per cent more man-hours are required to wind a coil with asbestos insulated wire than with cotton-insulated wire. The use of Fiberglas insulated wire has already improved the coil winding operation so that now only 25 per cent more man-hours are required to wind Fiberglas insulated coils as compared to cotton-insulated coils.

Thus the use of Fiberglas results in a saving of 75 per cent of the extra labor cost of building a Class "B" coil, and the savings are evidenced in the price reductions referred to above.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ALL ROOMS AIR CONDITIONED
You'll like the Lennox in St. Louis, too. Here in a handy downtown location, you'll find cheery, comfortable surroundings . . . sleep-inviting beds, famous food and drink . . . everything to make your stay pleasant.
All rooms are noiseproofed . . . have private bath, radio and guest-controlled air-conditioning. Rates: 50% of all rooms $3.50 or less, single; $5.00 or less, double.
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**101. SERVICE EQUIPMENT AND LOAD CENTERS**—Service Equipment, Load Centers and Panelboards assembled with Type AC circuit breakers are listed in this new publication. In addition to considerable general information, it includes specifications and price data. Frank Adam Electric Company, St. Louis, Mo.

**103. SWITCH AND OUTLET BOXES**—Cubic inch capacity is given for many types and sizes with interpretation of National Electrical Code. New Racolets in many types. All-Steel-Equip Co., Aurora, Ill.

**106. COOLAIR ATTIC PACKAGES—FORM 241**—Complete descriptions of 1941 Coolair single and twin attic packages, including fan, vent box and newly developed gestions. Designated as Form 241. American Coolair Corp., Jacksonville, Fla.

**108. AMARINE NON-LEADED SUBMARINE CABLES—FORM 6118**—An attractive, 16-page booklet on Submarine Cables, with illustrations of various applications and descriptions of typical installations. Copies may be obtained by writing the American Steel & Wire Co., Rockefeller Bldg., Cleveland, Ohio.

**109. TIME SWITCHES**—Folder on Time Switches with a short description of the new line of Time Switches ranging from 770 to 4,950 watts per pole in capacity, and in single, double, and triple-pole types. Both single-throw and double-throw models are available. Automatic Electric Mfg. Co., Mankato, Minn.

**111. NEW CORY CATALOG**—The new merchandising features presented in this new catalog are free spare glass with famous CORY Assortments—also the new CORY Glass Filter Rod-Funnel Holder Dollar Combination which makes these needful accessories available to all users of Glass Coffee Makers. Glass Coffee Brewer Corp., 325 No. Wells St., Chicago, Ill.

**112. TELEPHONE & CODE CALL EQUIPMENT**—A new Bulletin No. 108 is available describing the new Couch "Autophone" System of automatic telephones which incorporates valuable features among which is a Code Call circuit which may be used in conjunction with the telephone system. This system is designed for industrial, commercial and institutional buildings. S. H. Couch Company, Inc., North Quincy, Mass.

**113. INTERPRETING THE NEW CODE IN TERMS OF NEW BUILDING WIRES**—A new booklet describing the rulings on thin, heat-resisting and synthetic insulations are carefully simplified. The ratings of the newly recognized types of wires and the new ratings for Type R are graphically shown in tables for both the new and rewiring classes of work. General Cable Corporation, 420 Lexington Avenue, New York, N. Y.

**114. IDEAL PRODUCTS CATALOG** — A special 25th anniversary catalog has just been issued describing the complete line of Ideal Products. Electrical Contractors, Motor Rewinders, and Industrial Maintenance Electricians will be particularly interested in this comprehensive publication. Ideal Commutator Dresser Co., 1270 Park Avenue, Sycamore, Ill.

**115. FLUORESCENT LIGHTING ACCESSORIES**—Spring Bulletin No. 2, describing and illustrating complete Lloyd line of Fluorescent Lamp Holders, Starters, Starter Sockets and Holder and Socket combinations. Lloyd Products Company, Providence, R. I.

**116. "PLUG-IN" STRIP CATALOG**—This twenty-eight page booklet includes a wide range of application data and specifications on "Plug-In" Strip. Constructors will find the actual insulation diagrams and instructions of particular interest. National Electric Products Corp., Pittsburgh, Pa.

**118. HOME VENTILATION—FORM 347**—Describing benefits of home ventilation with methods of sizing and installing units. Six pages. Profusely illustrated. Schwitzer-Cummins Company, 1145 East 22nd Street, Indianapolis, Indiana.

**119. COMMERCIAL VENTILATION—FORM 402**—A four-page bulletin pointing the way to increase dealer profit through the sale of ventilation to stores, restaurants, taverns, etc. Illustrated. Schwitzer-Cummins Company, 1145 East 22nd Street, Indianapolis, Indiana.

**120. SQUARE D COMPANY** announces the Spring issue of the Square D Digest, dated April, 1941. This condensed catalog contains listings and the latest prices of many Square D products, including Safety Switches, Service Equipment, Multi-breakers and other Circuit Breakers, Panelboards, Motor Control and Pressure Switches. Square D Co., Detroit, Michigan.

**121. NEW WIRE CATALOG**—A new catalog just issued by the United States Rubber Company contains complete specifications for every type of building wire and cable—single conductor and multiple conductor, rubber insulated and synthetic insulated, fibrous covered and lead covered. United States Rubber Co., Rockefeller Center, New York, N. Y.

**123. NEW FOLDER DESCRIBES WATER COOLERS**—Water coolers for general industrial and office use are described in a new 8-page illustrated folder announced by Westinghouse Electric and Manufacturing Company. Copies of folder 1WC-0201 may be secured from department 7-N-20, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

**124. FOUR NEW Y. P. S. CABINET SINKS** are shown on a new two-color wall poster. There are provisions made for prices on each model and the poster carries full description of each sink. Folder designated as No. 1054. Youngstown Pressed Steel Division of Mullins Manufacturing Corporation, Warren, Ohio.

**126. WIRING DEVICES**—"Arrow" catalog No. 27 and "H&H" catalog No. "X". 100 pages, lists the complete line of quality, dependable wiring devices, including switches, receptacles, sockets, and plug material. The Arrow-Hart & Hegeman Electric Company, Hartford, Conn.

**128. CATALOG 411**—dated May, 1941, illustrates, describes and prices the various Bull-Dog standard product lines consisting of safety switches, service equipment, light and power panelboards, circuit breaker panelboards, KBL-Duct, compact type VACU-Break switchboards. BullDog Electric Products Co., 7610 Jos. Campau Ave., Detroit, Mich.

**130. 1941 FRIGIDAIRE REFRIGERATORS** are described in this colorful book. Included are full page, color pictures of various models together with specifications and descriptions of features. Frigidaire Div., General Motors Sales Corp., Dayton, Ohio.

**132. INDUSTRIAL WIRING HANDBOOK:** This 48-page handbook, called "Adequate Wiring for Industry," describes modern factory wiring methods and materials. Wiring practices adaptable to all factories are outlined. Publ. No. 51-4011. General Electric Co., Appliance and Merchandise Dept., Bridgeport, Conn.

**142. ELECTRICAL CONDUIT:** Complete technical information on corrosion-resisting asbestos-cement ducts for underground and overhead service, with and without concrete envelop, is included in "Transite Conduit and Korduct for the Electrical Industry." DS Series 410. Johns-Manville, 22 East 40th Street, New York, N. Y.

**144. UNIVERSAL ELECTRIC RANGES**—Complete line folder giving features of models in Universal 1941 line of electric ranges and telling "Precision Cooking" story. Folder No. 6420. Landers, Frary & Clark, New Britain, Conn.

**146. ATTIC VENTILATION:** New bulletin giving complete information about all-electric, dependable, trouble-free Timers for automatic control of attic fans. Mechanism timed and operated by slow-speed, self-starting synchronous motor. No clock works. Bulletins available on other Timers and Time Switches. Paragon Electric Company, 409 South Dearborn Street, Chicago, Ill.

**148. LITTLE GIANT RELAY**—A new small Relay for use on A. C. or D. C. is described in a Ward Leonard Bulletin No. 105. The Relay is available in single pole, single or double throw contacts. On standard frequencies, coils can be obtained for 6 to 230 volts. Complete information on contact rating is given in the bulletin. Ward Leonard Electric Co., Mount Vernon, N. Y.

**149. ELECTRIC RANGE UNITS:** Chromalox Bulletin CF-107 lists proper assembly and adaptor ring to fit any range, regardless of age or make. Inventory investment and servicing reduced to minimum. Units same as used on many makes of new ranges. Edwin L. Wiegand Company, 7600 Thomas Boulevard, Pittsburgh, Pa.

**151. ATTIC FAN MANUAL** — New four-page bulletin, No. 204-B, entitled "The Coolvent System of Home Ventilation," gives specification data on Coolvent attic fans, suction chambers and automatic louvres. Diagrams in color illustrates attic cooling principle. Text and drawings describe proper installation of the complete System. Autovent Fan & Blower Co., Chicago, Ill.

**153. AC WATTHOUR METERS**—This new 48-page bulletin features AC watthour meters, including single phase, single disk 2, 2½, and 3 element; meter and time-switch combinations; maximum demand registers; and accessories. Design and construction details are described and illustrated and views of assembled and disassembled component parts are shown. The booklet contains connection diagrams, outline dimensions, and prices. Ask for bulletin No. 97. Sangamo Electric Co., Springfield, Ill.

**154. BULLDOG ELECTRIC PRODUCTS**—Condensed catalog No. 411, dated May, 1941, has just been issued and includes specifications and price data on a wide range of products, such as safety switches, service equipment, lighting panels, switchboards, and other devices. Bulldog Electric Products Co., 7610 Jos Campau Ave., Detroit, Mich.

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